

U.S.C.G. Merchant Marine Exam  
Mobile Offshore Drilling Units  
Q433 OIM Surface Units on Location  
(Sample Examination)

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

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

Correct answer: B

2. The DEEP DRILLER, at a draft of 60 feet, has VM of 942,120 ft-tons, and FSML of 36,235 ft-tons. What is the KGL?
- A. 52.0 feet
  - B. 53.0 feet
  - C. 54.0 feet
  - D. 55.0 feet

Correct answer: C

3. The connection facilities for the international shore connection required on board offshore drilling units in international service must be located to provide access \_\_\_\_\_.
- A. to each side of the drilling unit
  - B. on each level of the accommodation space
  - C. as close as possible to the control house
  - D. on the drill floor

Correct answer: A

4. The DEEP DRILLER may remain at operating draft instead of deballasting to survival draft when \_\_\_\_\_.
- A. the maximum wave height is greater than 64 feet
  - B. waves approach within two feet of the spider deck
  - C. critical motion limits have been exceeded
  - D. winds are less than 70 knots

Correct answer: D

5. An uncontrolled flow of gas, oil, or other well fluids into the atmosphere is called a \_\_\_\_\_.
- A. kick
  - B. blowout
  - C. flow
  - D. breakout

Correct answer: B

6. 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 transverse free surface correction is \_\_\_\_\_.

- A. 1.25 feet
- B. 0.82 foot
- C. 0.34 foot
- D. 0.18 foot

Correct answer: D

7. The discharge side of every fire pump must be equipped with a \_\_\_\_\_.

- A. gate valve
- B. pressure gauge
- C. strainer
- D. check valve

Correct answer: B

8. In a semisubmersible MODU, the columns contain void spaces above the waterline that are used principally for \_\_\_\_\_.

- A. reserve buoyancy
- B. machinery
- C. elevators
- D. equipment storage

Correct answer: A

9. Which of the following will the certificate of inspection of a MODU specify?

- A. maximum water depth for drilling
- B. number of credentialed personnel required on board
- C. maximum load line draft
- D. next date for an inclining experiment

Correct answer: B

10. Load line regulations are designed to ensure that a MODU has adequate structural strength and sufficient \_\_\_\_\_.

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

Correct answer: A

**11.** What is the weight of barite in P-tank #4 of the DEEP DRILLER if the ullage is 3.4 feet?

- A. 11.5 long tons
- B. 16.6 long tons
- C. 54.2 long tons
- D. 78.2 long tons

Correct answer: D

**12.** To determine the number of portable fire extinguishers required on a mobile offshore drilling unit, you should check the \_\_\_\_\_.

- A. Safety of Life at Sea Certificate
- B. Certificate of Inspection
- C. Operations Manual
- D. hot work permit

Correct answer: B

**13.** In the DEEP DRILLER, VCG is obtained from the sum of the vertical moments by \_\_\_\_\_.

- A. multiplying by displacement
- B. subtracting displacement
- C. adding displacement
- D. dividing by displacement

Correct answer: D

**14.** The DEEP DRILLER is loaded as shown in Sample Load Form #5 (Survival). While the unit is deballasting, starboard valve 5 fails in the closed position. You may deballast from tank 2S by pumping from tank 1S after opening valves 6 and \_\_\_\_\_.

- A. 8
- B. 7
- C. 2
- D. 1

Correct answer: C

**15.** When a MODU is afloat in equilibrium, the horizontal component of mooring line tensions should equal \_\_\_\_\_.

- A. weight forces
- B. buoyancy forces
- C. drilling forces
- D. environmental forces

Correct answer: D

- 16.** 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

- 17.** On a semisubmersible MODU, reserve buoyancy is increased by the presence of void spaces above the waterline in the \_\_\_\_\_.
- A. columns and upper structure
  - B. submerged connecting structures
  - C. submerged hulls
  - D. quarters

Correct answer: A

- 18.** The DEEP DRILLER, at 60.0 feet draft in sea water, has VM = 974,441 foot-long tons, LM = 40,301 foot-long tons, TM = 3 foot-long tons, FSML = 30,572 foot-long tons, and FSMT = 18,732 foot-long tons. What is the KG corrected for longitudinal free surface effects?
- A. 53.78 feet
  - B. 54.82 feet
  - C. 55.47 feet
  - D. 56.01 feet

Correct answer: C

- 19.** If H<sub>2</sub>S 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

- 20.** A survival craft being used to pick up a person who has fallen overboard from a MODU should approach the person \_\_\_\_\_.
- A. against the wind
  - B. under oars
  - C. with the wind
  - D. at a high rate of speed

Correct answer: A

**21.** 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

Correct answer: A

**22.** The end of the joint with the exterior threads is called the \_\_\_\_\_.

- A. stem
- B. stand
- C. pin
- D. box

Correct answer: C

**23.** While loaded as shown in Sample Load Form #5 (Survival), an estimated 250 long tons of snow and ice accumulates on the DEEP DRILLER at an estimated height of 127 feet. Assuming no corrective ballasting, what is the rise in the height of the center of gravity corrected for longitudinal free surface effects?

- A. 2.62 feet
- B. 2.20 feet
- C. 1.03 feet
- D. 0.71 foot

Correct answer: C

**24.** The DEEP DRILLER, loaded as shown in the Sample Load Form #4 (Drilling), discharges a non-liquid load of 275.8 long tons from a position 130 feet above the keel, 40 feet forward of amidships, and 30 feet to port of the centerline. What is the new GMT?

- A. 5.98 feet
- B. 6.84 feet
- C. 7.11 feet
- D. 9.24 feet

Correct answer: D

**25.** What is the weight of cement in P-tank #1 of the Deep Driller if the ullage is 3.4 feet?

- A. 11.5 long tons
- B. 16.6 long tons
- C. 54.2 long tons
- D. 78.2 long tons

Correct answer: C

**26.** An entry of water, gas, oil, or other formation fluid into the wellbore is called a \_\_\_\_\_.

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

Correct answer: D

**27.** In storm conditions, when the DEEP DRILLER is in 600 feet water depth, and the high-line tension (HLT) is 350 kips, completely slacking the two leeward mooring line tensions reduces the HLT to \_\_\_\_\_.

- A. 375 kips
- B. 275 kips
- C. 245 kips
- D. 220 kips

Correct answer: B

**28.** In anticipation of heavy weather, it is decided to deballast the DEEP DRILLER to survival draft. The marine riser should be disconnected, pulled, and laid down. After doing so, the riser tension will be \_\_\_\_\_.

- A. dependent on the water depth
- B. applied at the riser tensioner sheaves
- C. zero
- D. equal to the weight of the riser

Correct answer: C

**29.** The DEEP DRILLER is loaded as shown in the Sample Load Form Number 5 (Survival) when an unexpected slowly increasing starboard list and bow down trim occurs. A leak in 1S is found. By deballasting from ballast tanks 2S and 3S, the inclination slowly decreases. The increase in the longitudinal free surface correction is \_\_\_\_\_.

- A. 1.25 feet
- B. 0.90 foot
- C. 0.83 foot
- D. 0.34 foot

Correct answer: C

**30.** A person on a fixed or floating platform engaged in oil exploration MAY discharge food waste into the sea when the distance from the nearest land is at least \_\_\_\_\_.

- A. 3 nautical miles
- B. 5 nautical miles
- C. 12 nautical miles
- D. 25 nautical miles

Correct answer: C

**31.** The DEEP DRILLER is drilling at 60 feet draft at a corrected KG of 54.0 feet. Ballast added or discharged to remain at a constant draft is at a VCG of 10 feet. How much non-liquid load would have to be removed from an average height of 130 feet above the keel to meet the maximum allowable KG at a draft of 60 feet for winds greater than 70 knots?

- A. 1283 long tons
- B. 817 long tons
- C. 679 long tons
- D. 302 long tons

Correct answer: D

**32.** The motion that can significantly increase mooring line tension is \_\_\_\_\_.

- A. pitch
- B. sway
- C. roll
- D. yaw

Correct answer: B

**33.** The DEEP DRILLER is planning to operate while loaded as shown in the Sample Load Form #3 (Preparing to Drill). What is the margin between KGT and maximum allowable KG?

- A. 0.66 foot
- B. 2.58 feet
- C. 5.24 feet
- D. 7.87 feet

Correct answer: C

**34.** Laying down drill pipe from the derrick of a semisubmersible on location reduces the \_\_\_\_\_.

- A. righting moment
- B. metacentric height
- C. waterplane area
- D. natural roll period

Correct answer: D

**35.** The prohibition against exceeding the load line draft may be considered temporarily not applicable when \_\_\_\_\_.

- A. column-stabilized units are operating in water depths over 600 feet
- B. column-stabilized units are operating in waters outside U.S. jurisdiction
- C. bottom supported units are being towed on a move of less than 12 hours
- D. bottom supported units are being raised or lowered to the seabed

Correct answer: D

**36.** Temporary Certificates of Inspection for offshore drilling units are effective until the \_\_\_\_\_.

- A. permanent Certificate of Inspection is issued
- B. Minerals Management Service approval is issued
- C. classification society approval is issued
- D. Operations Manual is approved

Correct answer: A

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

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

Correct answer: B

**38.** While at operating draft, the DEEP DRILLER suffers flooding in the port pump room. Both port bilge pumps are inadequate to dewater the pump room. You may supplement the bilge pumps with the \_\_\_\_\_.

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

Correct answer: B

**39.** 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. vessel
- B. non-displacement vessel
- C. power-driven vessel
- D. limited vessel

Correct answer: A

**40.** In storm conditions, with the wind and waves from the port bow of the DEEP DRILLER in 400 feet water depth, the tensions in mooring lines 1 and 2 are 400 kips. Completely slacking the mooring lines 5 and 6 reduces the tension in mooring lines 1 and 2 to about \_\_\_\_\_.

- A. 220 kips
- B. 330 kips
- C. 275 kips
- D. 375 kips

Correct answer: B

**41.** 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

**42.** A hydraulic accumulator aboard a MODU is designed to \_\_\_\_\_.

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

Correct answer: B

**43.** Hydrogen sulfide in explosive concentrations has been detected on the drill floor and the abandon rig signal has been sounded. Which of the following would be the safest way to evacuate?

- A. launch only the windward liferafts
- B. launch only the windward survival capsules
- C. launch all survival capsules and liferafts
- D. launch only the leeward survival capsules and liferafts

Correct answer: B

**44.** The DEEP DRILLER, at 58.0 feet draft in sea water, places 200 long tons on board. What is the new draft?

- A. 56.55 feet
- B. 59.45 feet
- C. 60.00 feet
- D. 75.41 feet

Correct answer: B

**45.** 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. compensator
- B. equalizer
- C. stabilizer
- D. tensioner

Correct answer: A

**46.** 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. C1S
- D. 2S

Correct answer: A

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

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

Correct answer: D

**48.** The DEEP DRILLER, loaded as shown in Sample Load Form #2 (Ballast to Survival), suffers major damage which results in flooding in tank 10S. Your best countermeasure is to \_\_\_\_\_.

- A. pump from C3S
- B. pump from 10S
- C. counterflood in 1P
- D. pump from 9S

Correct answer: D

**49.** Which of the following would be the most probable location to encounter explosive and flammable gasses on a MODU?

- A. in bulk storage tanks
- B. at any location
- C. on the drill floor and liquid mud handling areas
- D. in machinery spaces

Correct answer: C

**50.** The DEEP DRILLER as currently configured is limited to a maximum water depth of \_\_\_\_\_.

- A. 400 feet
- B. 600 feet
- C. 800 feet
- D. 1,000 feet

Correct answer: B