

QUESTION 1

During an overbalanced drilling process, which are the primary barrier and the secondary barrier to avoid the invasion and the arrival of formation fluids at the surface?

QUESTION 2

Consider the following statement:

“If the rig starts moving away from above the subsea wellhead, the system controls the thrusters to push the rig back to its planned position.”

Where can this “system” be found?

- a) jack-up rigs
- b) anchored drill ships
- c) DP semisubmersible rigs
- d) Fixed platforms
- e) Barge rigs

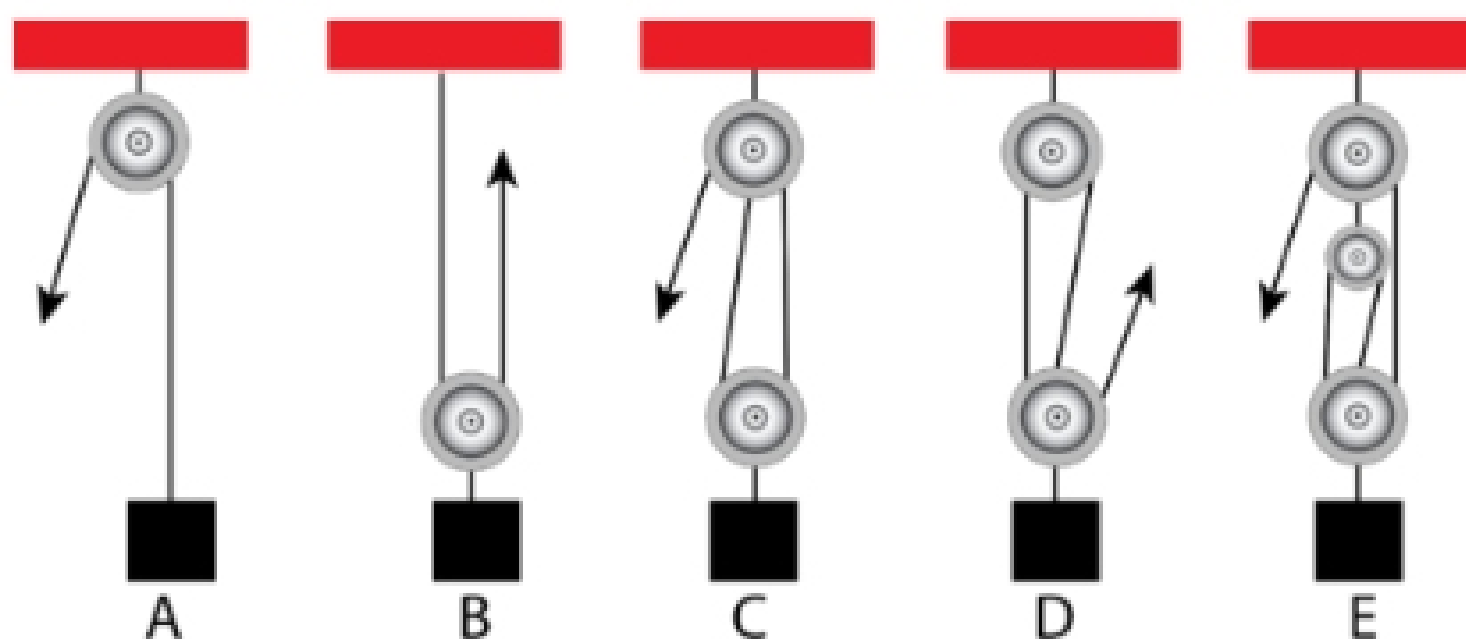
QUESTION 3

A floating rig uses the blowout preventer (BOP) on the seabed. Circle **TRUE** or **FALSE**.

QUESTION 4

A same load P is suspended by various sets of pulleys as shown below. Consider a frictionless system.

Compute the reaction force in the ceiling for each case.



QUESTION 5

For the same hook load, briefly explain what happens to the derrick load when you increase the number of lines strung between the two blocks of the hoisting system.

QUESTION 6

Replacing the traditional _____, the _____ lessens the manual labor involved in drilling, as well as many associated risks.

Circle the best option to fill the blanks.

- a) Kelly/top drive
- b) Hook/top drive
- c) Traveling block/top drive
- d) Traveling block/mud motor
- e) Hook/mud motor

QUESTION 7

Which of the following correctly traces the path of the drilling mud?

- a) Mud tank, standpipe, hose, annulus, swivel, bit, drill string, mud tank.
- b) Mud tank, standpipe, hose, swivel, drill string, bit, annulus, mud tank.
- c) Swivel, drill string, mud tank, standpipe, hose, annulus, bit, mud tank.
- d) Swivel, mud tank, standpipe, hose, annulus, bit, drill string, mud tank.
- e) Mud tank, standpipe, hose, swivel, bit, drill string, bit, annulus, mud tank.

QUESTION 8

What is the main difference in performance between the kelly-rotary table system and the topdrive system?

QUESTION 9

Circle the rig equipment that belongs simultaneously to the hoisting, circulating, and rotating systems:

- a) Standpipe
- b) Swivel
- c) Traveling block
- d) Hook

QUESTION 10

The mud is propelled at high speed at the top of an inverted cone along a tangent. Centrifugal forces press the larger and heavier solids to the side of the cone. This process is found in the following rig equipment:

- a) Shale shaker
- b) Mud pump
- c) Desander
- d) Trip tank
- e) Degasser

QUESTION 11

Drilling fluids and cement slurries are generally *pseudoplastic* in nature, i.e., the apparent viscosity decreases with increasing shear rate. The following rheological model **CANNOT** describe this behavior:

- a) Power-Law
- b) Bingham plastic
- c) Newtonian
- d) Herschel-Bulkley

QUESTION 12

Which of the following mud properties has **MORE** effect on the suspension of drilled solids with mud at rest?

- a) Gel strength
- b) sand content
- c) pH
- d) absolute consistency
- e) fluid loss

QUESTION 13

Which of the following **CANNOT** be said about the drill collars?

- a) The connection is stronger than the body pipe
- b) Stiffen BHA preventing buckling
- c) Provide WOB
- d) Help in hole deviation in vertical wells