

Q1

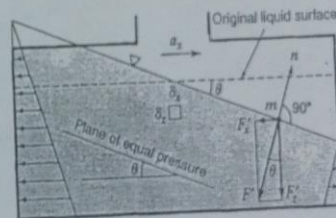
What must be the hydrostatic gage pressure at a depth of 8 inches in a bucket of oil ($s = 0.86$) that is in an elevator being accelerated upward at 15 ft/sec^2 ?

Q2

A tank containing water to a depth of 2.5 m is accelerated upward at 3.6 m/s^2 . Calculate the pressure on the bottom of the tank.

Q3

Suppose the tank shown in Fig. is rectangular and completely open at the top. It is 15 ft long, 6 ft wide, and 4 ft deep. If it is initially filled to the top, how much liquid will be spilled if it is given a horizontal acceleration $a_x = 0.2g$ in the direction of its length?



Q4

A U-tube acceleration meter consists of two vertical limbs connected by a horizontal tube of 400 mm long parallel to the direction of motion. Calculate the level difference of the liquid in the U-tube when it is subjected to a horizontal uniform acceleration of 6 m/s^2 .

Q5

An open rectangular tank 4 m long and 3 m wide contains water up to a depth of 2 m. Calculate the slope of the free surface of water when the tank is accelerated at 2 m/s^2 ,

(i) up a slope of 30° , and

(ii) down a slope of 45°