1. (c) 

∴

1. (a)  
2. (b) Bulk modulus, 

⇒ 

∴ Density, 

where, 

= pressure difference between depth and surface of ocean

∴  (As *h = y*)

1. (b) Since, with increase in temperature, volume of given body increases, while mass remains constant so that density will decrease.

*i.e.* 

∴ 

1. (b) = = 2*d*.
2. (b) = = 
3. (d) Pressure = *hρg i.e.* pressure at the bottom is independent of the area of the bottom of the tank. It depends on the height of water upto which the tank is filled with water. As in both the tanks, the levels of water are the same, pressure at the bottom is also the same.
4. (a)
5. (c) A torque is acting on the wall of the dam trying to make it topple. The bottom is made very broad so that the dam will be stable.
6. (c)
7. (c) For the floatation  ⇒ 

∴ 

⇒ 

1. (d)
2. (a) Apparent weight = 

= = 

1. (b)
2. (b) Effective weight  which is less than actual weight *mg*, so the length of spring decreases.
3. (d) Tension in spring *T* = upthrust – weight of sphere

 

= 

1. (a) When body (sphere) is half immersed, then

upthrust = weight of sphere

⇒  ∴ 

When body (sphere) is fully immersed then,

Upthrust = wt. of sphere + wt. of water poured in sphere

⇒ 

⇒ ⇒ 

1. (a) Since no change in volume of displaced water takes place, hence level of water remains same.
2. (b) The velocity of ball before entering the water surface



When ball enters into water, due to upthrust of water the velocity of ball decreases (or retarded)

The retardation, *a* = 



If *h* be the depth upto which ball sink, then,

⇒ ∴ *h* = 6 *cm*.

1. (b) Upthrust = weight of body

For *A*, 

For *B*, 

(Since 1/4 of volume of *B* is above the water surface)

∴ 

1. (a)
2. (c) Time taken by water to reach the bottom

= 

and velocity of water coming out of hole, 

∴ Horizontal distance covered 

= = 

1. (b) Horizontal range will be maximum when 

= 45 *cm* *i.e.* hole 3.

1. (b) Time taken to be emptied for *h* height, 

and for  height, 

∴ 

1. (d) Upthrust – weight of body = apparent weight



Where *a* = retardation of body ∴ 

The velocity gained after fall from *h* height in air, 

Hence, time to come in rest,



1. (c) 

Now, 

and 

According to problem 

∴⇒ 

1. (b)
2. (b)
3. (a)
4. (a)