Assignment

Compute the fractional change in volume of a glass slab when subjected to a hydraulic pressure of 10 atm. Given $B_{glass} = 37 \times 10^9$ N/m²

Ans) **Hydraulic pressure exerted on glass slab,**

$p = 10$ **atm**

Bulk modulus of glass, $B = 37 \times 10^9 \, N \, m^{-2}$

Bulk modulus, $B = P/(\Delta V/V)$

where,

$\Delta V/V =$ **Fractional change in volume**

$\Delta V/V = P/B$

$= 10 \times 1.013 \times 10^5 /(37 \times 10^9)$

$= 2.73 \times 10^{-5}$

Therefore, the fractional change in the volume of the glass slab is 2.73×10^{-5}.