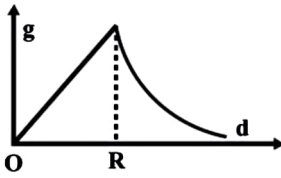
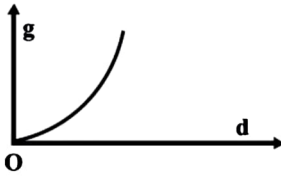
Question

The variation of acceleration due to gravity g with distance d from centre of the earth is best represented by (R=Earth's radius) :

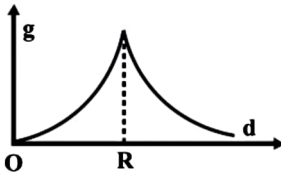
A



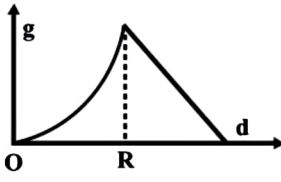
B



C



D



Solution

Correct option is A)

With depth

$g_1 = g(1 - \frac{(d)}{R})$

As depth d goes on increasing g_1 goes on decreasing, it remains maximum at the surface of Earth .The above equation is in the form of straight line.

With height

$g_2 = g(1 - \frac{2h}{R})$

$= g - \frac{2gh}{R}$

$g_2 \propto \frac{1}{R}$ (Hyperbola)

Acceleration due to gravity goes on decreasing as the h above Earth surface increases.

Hence the correct answer is option A.