QUES 03:-

The height at which the acceleration due to gravity becomes g/9 (where g = the acceleration due to gravity on the surface of the earth) in terms of R, the radius of the earth, is

(a) R/2

(b) R/3

(c) 2R

(d) 3R

Solution

Acceleration due to gravity at a height "h" is given by

$g' = g\ (R/R+h)^2$

Here,

g is the acceleration due to gravity on the surface

R is the radius of the earth

As g' is given as g/9, we get

$g/9 = g(R/R+h)^2$

$⅓ = R/(R+h)$

$h=2R$

Answer: (c) 2R