

Q. Define acceleration due to gravity.

Ans The uniform acceleration produced in a freely falling body due to the gravitational force of the earth is known as acceleration due to gravity.

Q. Find out the relation between  $g$  and  $G$ ?

Gravitation attraction force,  $F = \frac{GMm}{r^2}$

Gravitational constant,  $G = 6.67 \times 10^{-11} \text{ m}^3 \text{ kg}^{-1} \text{ s}^{-2}$

Mass of earth,  $M_e = 5.92 \times 10^{24} \text{ kg}$

Radius of earth =  $6.37 \times 10^6 \text{ km}$

Gravitation force = weight of body

$$\frac{GMm}{r^2} = mg \quad \Rightarrow \quad g = \frac{GM}{r^2}$$