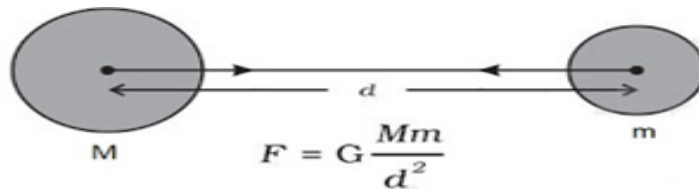**CHAPTER 3. (GRAVITATION)(BASED ON NCERT PATTERN)**

Gravitation :-

Earth attracts everything towards it by an unseen force of attraction. This force of attraction is known as gravitation or gravitational pull.

Universal Law of Gravitation:-

Every object in the universe attracts other object by a force of attraction, called gravitation, which is directly proportional to the product of masses of the objects and inversely proportional to the square of distance between them. This is called Law of Gravitation or Universal Law of Gravitation.

Let masses (M) and (m) of two objects are distance (d) apart. Let F be the attractional force between two masses.

$$F = G\frac{Mm}{d^2}$$

Here, $F \propto M \times m$

Also, $F \propto \dfrac{1}{d^2}$

$\Rightarrow$ $F \propto \dfrac{Mm}{d^2}$

Or $F = \dfrac{GMm}{d^2}$

Where,

G is a constant and is known as Gravitational constant.

Value of $G = 6.67 \times 10^{-11}$ Nm^2/kg^2

G is called universal gravitational constant.