(1) State the universal law of gravitation.

=> It was given by *Isaac Newton.
According to this law, the attractive force between any two bodies in the universe is directly proportional to the product of their masses and inversely proportional to the Square of distance between them.

(2) Write the formula to find the magnitude of the gravitational force between the earth and an object on the surface of the earth.

=>

(3) Define free fall.

= Whenever objects falls towards the earth under the earth's gravitational force alone.

④ Differentiate between mass and weight

⇒ The total amount of matter contained in an object is called its mass.

The object is the force with which it is attracted towards the earth.

Mass – Scalar quantity
Weight – Vector quantity

Mass - SI Unit → Kilogram (Kg)
Weight – SI unit → Newton (N)