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Q.1 The ratio of force acting perpendicularly on an area to the magnitude of area is the

(A) pressure.
(B) force.
(C) volume.
(D) density.

Q.2 Astronauts wear special suits while floating in space due to

(A) presence of atmospheric pressure.
(B) absence of atmospheric pressure.
(C) good looks.
(D) food storing facility.

Q.3 S.I. Unit of force is

(A) Newton.
(B) Dyne.
(C) kg-wt.
(D) kg.

Q.4 Gravitational force acts between

(A) Sun and planet.
(B) Earth and Moon.
(C) all the bodies in the universe
(D) Sun and Earth.

Q.5 Which force can not act from a large distance

(A) Magnetic
(B) electrostatic
(C) Gravitational
(D) Frictional

Q.6 Newton's Law of Gravitation: The questions like why did the apple fall on the ground and why didn't the satellite fall on the ground fascinated the scientist Newton. He came up with the universal law of gravitation.

Statement:

"Everybody in the universe attracts every other body with a force which is directly proportional to
the product of their masses and inversely proportional to the square of the distance between them ". That is if objects are very close to each other than the distance between them is less and
so the force with which they attract each other will be more.
Suppose you have a ball and a box both lying on the floor. Do they actually start moving towards
each other? According to the universal law, the ball and the box should be moving towards each
other. But in actuality this does not happen. This is because the force with which they are attracting
each other is very small.
So here if the mass of the ball is m1 and mass of the box is m2 then, $F \propto m1m2$, and is

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inversely proportional to the distance between them.
In symbols, the magnitude of the attractive force F is equal to G (the gravitational constant, a number the size of which depends on the system of units used and which is a universal constant) multiplied by the product of the masses (m1 and m2) and divided by the square of the
distance R: F = G(m1m2)/R2

Isaac Newton put forward the law in 1687 and used it to explain the
observed motions of the planets and their moons, which had been reduced to mathematical form by Johannes Kepler early in the 17th century. As you move the objects far away from each other the force will be less and if the objects are brought close then the force will be much greater.
Importance of Newton's Universal Law of Gravitation

A. It has explained to us the force that binds us to the earth i.e. how every object is pulled from the earth.
B. It explains the motion of the moon around the earth.
C. Also, the motion of the planets around the earth is explained.

Q. 1. The gravitational attraction between the two bodies increases when their masses are
(a) reduced and distance reduces
(b) increased and distance is reduced
(c) reduced and distance is increased
(d) increases and distance is increased

Q. 2. The gravitational force with which the earth attracts the moon :
(a) is less than the force with which the moon attracts the earth.
(b) is equal to the force with which the moon attracts the earth.
(c) is greater than the force with which the moon attracts the earth.
(d) varies with the phases of the moon.

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