Gravitation – Sa2

1) Define: - Thrust

Ans: The Force acting on an object perpendicular to the surface is called Thrust.

Unit of Thrust is Newton

2) What is Pressure?

Ans: The Thrust on unit area is called Pressure

Pressure = Thrust/area

Its Unit is N/M^2 or Pascal (Pa)

3) Factors on which Pressure depends.

 ➢ Pressure is directly proportional to force on a surface.
 ➢ Inversely Proportional to area.

4) When you stand in the beach your feet will go deep into the sand, but when you sleep in the sand your body won't go deep? Why?

Ans: When you stand in the loose sand the weight of your body is acting on an area equal to the area of your feet. When you lie down, the same force acts on an area equal to the contact area of your whole body, when is larger than area of your feet. Since pressure is inversely proportional to area. Pressure acting on sand is more in the first case (when you are standing)

5) What you mean by Buoyancy and Buoyant force.

Ans:

Buoyancy	Buoyant Force
The Tendency of a fluid to exert an upward force on a body when immersed in it is called Buoyancy	The Upward force exerted by the fluid on the body when immersed in fluid is called buoyant force.

6) Factors on which buoyant force depends

Ans: Buoyant force is –

- ➢ Directly proportional to volume of object.
- ➢ Directly proportional to density of fluid.

7) Define Archimedes Principle.

Ans: When a body is immersed fully or partially in a fluid, it experiences an upward force that is equal to the weight of the fluid displaced by it.

8) Applications of Archimedes Principle.

- ➢ It is used in designing ships and submarines.
- ➢ Lactometers, which are used to determine the purity of a sample of milk.
- ➢ Hydrometers used for determining density of liquids.

9) Density of Silver and Water.

Ans: Density of Silver: 10.8

Density of Water: 1000 kg per m^3

10) Calculate density of silver in SA unit.

Ans: Relative Density = Density of Silver/ Density of water

10.8 = Density of Silver/1000

Density of silver = 10.8 x 1000 = 10800 kg/m^3

11) Why is it difficult to hold a school bag having a thin strap made of a thin and strong string?

Ans: Pressure is inversely proportional to area for bag having thin strap area is less.

∴ Pressure exerted is more.

12) You find your mass to be 42 kg on a weighing machine. Is your mass more or less than 42kg?

Ans: More than 42kg weight machine reads slightly less value because of up thrust of air acting on one body.

13) You have a bag of cotton and an iron bar, each indicating a mass of 100kg when measure on a weighing machine In reality one is heavier than other. Can you say which one is heavier and why?

Ans: Cotton bag is heavier than iron because up thrust of air of cotton bag is more shows less value on the weight machine.