Chapter – 11

Force and Pressure

- **Force**: A push or a pull, that changes or tends to change the state of rest or uniform motion of an object or changes its direction or shape.
- A force arises due to the interaction between two objects.
- Force has magnitude as well as direction.
- A change in the speed of an object or the direction of its motion or both implies a change in its state of motion.
- Force acting on an object may cause a change in its state of motion or a change in its shape.
- A force can act on an object with or without being in contact with it.
- **Types of Forces:**
- **Contact Forces:** The forces act on a body when the source of force is in actual contact with the body.
  (i) **Muscular Force:** The force exerted by the muscles of the body.
  (ii) **Mechanical Force:** The force produced by a machine.
  (iii) **Frictional Force:** The force that opposes the motion of an object.
- **Non-Contact Forces**: Forces which do not involve physical contact between two bodies on which they act.
  (i) **Magnetic Force:** A magnet exerts a non-contact force on objects made of iron, steel, cobalt or nickel.
  (ii) **Electrostatic Force:** The force which result due to repulsion of similar charges or attraction of opposite charges.
  (iii) **Gravitational Forces:** The force that exists between any two masses because of their mass.
- Force per unit area is called pressure.
- Liquids and gases exert pressure on the walls of their containers.
- The pressure exerted by air around us is known as atmospheric pressure.