**13-KINETIC THEORY OF GASES**

**1. Gas laws and ideal Gas Equation**

1. *Boyle’s law =* At constant temperature, *PV =* Constant or P1V1 = P2V22. *Charles’ law* = At constant pressure,  or  3. *Gay Lussac’s law =* At constant volume,  or  4. Perfect gas equation is *PV = nRT*

or  5. Boltzmann’s constant 

**2. Kinetic Theory of Gases & Kinetic Interpretation of Temperature**

1. Pressure exerted by a gas,  2.  3. Mean K.E. per molecule of a gas,  4. Mean K.E. per mole of a gas,  5. K.E. of 1 g of a gas =  6. Avogadro’s number =  or 

7. No. of moles, 

**3. Average, R.M.S. & Most Probable Speeds**

1. Average speed,  2.  3. R.M.S. speed,  4.  5. Most probable speed, 

**4. Degrees of Freedom, Specific Heats of Monoatomic Diatomic and Polyatomic Gases**

1. Energy associated with each degree of freedom per molecular =  2. For a gas of *polyatomic molecules* having *f* degrees of freedom, Energy associated with 1 mole of gas,     3. For *monoatomic gas f = 3*, so     4. For a *diatomic gas*, *f = 5*      5. For a *triatomic gas of non-linear molecules f = 6, so*  ,  ,  6. For a *triatomic gas of linear molecules* *f* = 7, so    