

Gauss's Law

Gauss's Law states that the electric flux through a closed surface is equal to the total charge enclosed by that surface divided by permittivity of free space.

Ohm's Law

The magnitude of a current in a conductor is directly proportional to the applied voltage.

Kirchhoff's Current Law

The algebraic sum of all the current meeting at junction in an electric field is zero i.e. $\sum I = 0$

Kirchhoff's Voltage Law

The algebraic sum of all the electromotive forces and voltage drops in a resistor is equal to zero i.e. $\sum E_{\text{mf}} + \sum V = 0$

Wein's displacement Law:

With the increase in temperature the peak of the distribution Shift towards shorter Wavelength

$$\lambda_{\text{max}} T = \text{Constant}$$

Stephen Boltzman Law:-

The area is directly proportional to the 4th square of absolute Temperature
i.e. $E = \sigma T^4$

Plank's Theory

The vibrating molecules of the black body cavity which emitted these radiations having only discrete amount of energy
 $E_n = nhf$

Concave



Convex



Imp:- The trajectory of a projectile is represented by $y = \sqrt{3}x - gx^2/2$ the angle of projection is: 60°

- To measure very high Temperature Pyrometer is used. (Thermal Energy)
- To measure very low Temperature Bolometer is used. (Thermal Energy)
- Lyman Series Series of hydrogen Spectral lines occur in the ultraviolet region.
- The reverberation times for speech is 0.5 sec.
- The refractive index of water is 1.33
- Which one is not a unit of time
Microsecond,
✓ Paralactic Second → It is unit of
Leap year & distance is
Solex day abbreviation per Sec
- used to examine polarized light, the instrument used is called Analyser.
- Plane Polarized Produces by Polarizer
- The Wavelength of X-ray is order of 1 Angstrom.
- Unit of intensity of Sound Wbm^{-2}
- Unit of Intensity of heat decible

Astornomical unit is average distance
btw Earth and Sun.
Rocket work on law of Newton 3rd Law.

Increasing Force

Increasing mass

Instrument use in submarine to

See above level things. Periscope

(Myopia)

(Hyperopia) Long Sightedness

Short Sightedness

Distant objects
are seen clearly.
can't see close object :-

close objects seen
clearly but
distant objects can't.

Farsightedness is corrected by :-
Near Sightedness is corrected by :-
Convex lens

Concave lenses

cohesion: attractive force btw molecules of same substance
e.g; water molecules sticking together due to H-bonding.

Adhesion:

attractive force btw molecules of
different substances.

cause liquid to stick to surfaces.

* In Compton ^{Effect} both energy and momentum are conserved.

* In resistive ^{circuit} both voltage and current are in Phase.

* When an e⁻ move perpendicular to magnetic field
the magnetic force will move in circular path.

* Speed: Rate of change of distance ^{i.e distance} how fast it is

* Velocity: Rate of Change of displacement ^{covered}

* acceleration: Rate of change of Velocity

1 ml = 1 cm³

1 l = 1000 cm³

SI unit of Density Kg m^{-3}

1 Km = 1000 m

1 cm = 0.01 m

1 Km = 100,000 cm

1 mm = 10⁻³ m

Speed m/s

1 Mm = 10⁶ m

Velocity m/s

1 nm = 10⁻⁹ m

Acceleration m/s²

1 Nm = 1 Kg m s⁻²

SI unit of stress = Nm^{-2}

SI unit of young Modulus = Nm^{-2}

Mercury freezes at = -39°C

Mercury boils at = 357°C

Mercury in glass thermometer measure temperature in range of 10°C to 150°C

ON Farahenit Scale the lower fixed point = 32°F

" " " the upper fixed point = 212°F

The equation of Specific heat $c = \frac{\Delta Q}{m \Delta T}$

Unit of Specific heat = $\text{J Kg}^{-1} \text{K}^{-1}$

Specific heat of water = $4200 \text{ J Kg}^{-1} \text{K}^{-1}$

Specific heat of Dry Soil = $810 \text{ J Kg}^{-1} \text{K}^{-1}$

Mirror Formula = $\frac{1}{f} = \frac{1}{p} + \frac{1}{q}$

$\sin i / \sin r = \text{constant} = n = \text{Snell's law}$

Speed of light in air = $3.0 \times 10^8 \text{ m s}^{-1}$

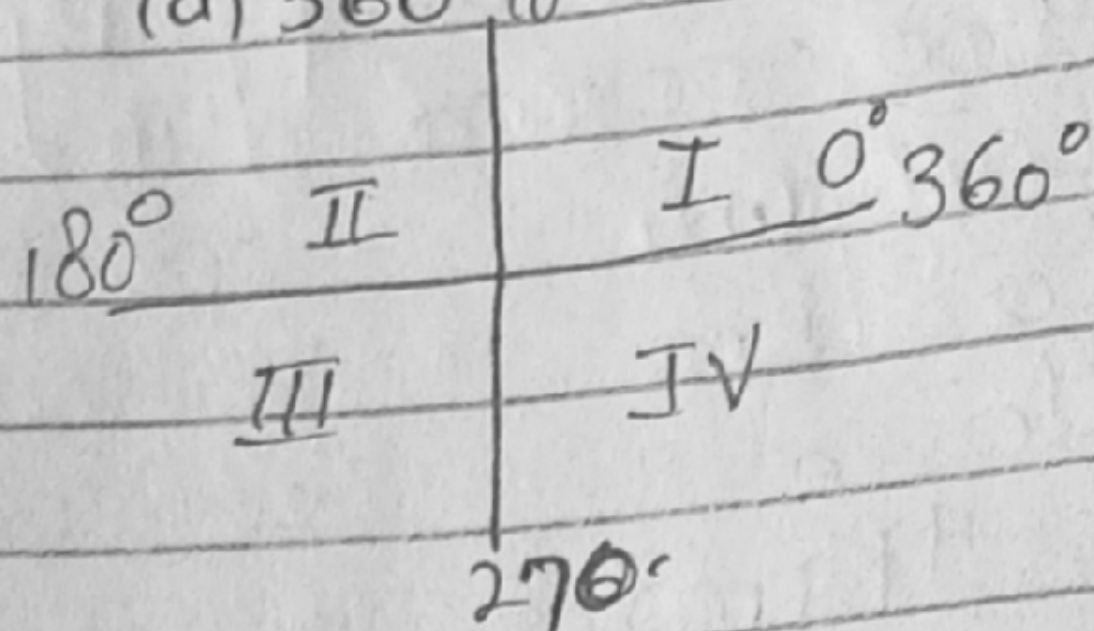
" " " water = $2.3 \times 10^8 \text{ m s}^{-1}$

" " " gas = $2.0 \times 10^8 \text{ m s}^{-1}$

Physics Imp & Most Important

1. When speed increases pressure decreases
Bernoulli's Equation

2. If vector A lies in third quadrant the direction will be:
(a) 360° (b) 180°



3. Tolerance	of silver	40%
"	Brown	10%
"	Red	2%
"	Green	0.5%
"	Blue	0.25%
"	Violet	0.1%
"	Gold	5%

4. Unit of velocity ms^{-1}

5. ONE Newton force exerted on 1kg body, the acceleration will be:
 ms^{-2}

6. Transformer works on the principle of:
mutual Induction

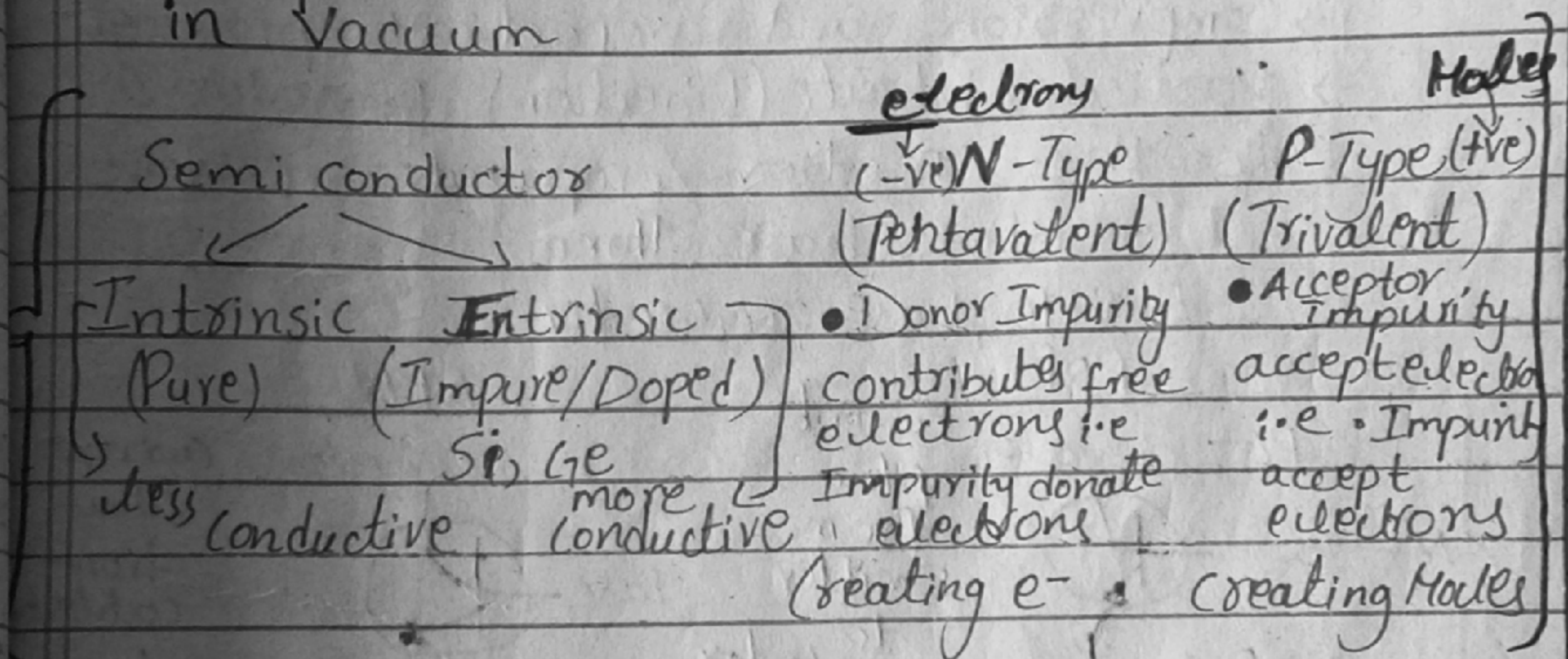
7. Which of the following law give the direction for induced emf.
Lenz law

8. Which one has the same dimensions
Torque / energy / work are:

9. Nox is gate when all of its input off i.e 0.

10. What is the unit of Work? Joule
11. One radian equal to: 57.3°
12. Least count of vernier caliper: 0.1 mm
13. Equation of Continuity:

$$P A V = \text{Constant} / A_1 V_1 = A_2 V_2$$
14. At which ~~Wave~~ angle Compton Wavelength is equal to Compton Shift? 90°
15. ~~Work~~ ^{Force} and displacement are in opposite direction, so work is negative
16. Who explained photoelectric effect Einstein
17. Pair production Cannot be possible in Vacuum



Gamma rays / electromagnetic radiations consists of Photons

When light enters from vacuum to water which quantity will not change frequency
 When the source of sound wave moves away from the frequency decreases
 The idea of ^{Louis} matter was first proposed by de Broglie
 Energy required to produce pair of electron and positron 1.022 MeV

(Myopia)

NearSightedness

cannot see
close objects
but can see
distant objects.

(Hyperopia)

Farsightedness

cannot see
distant objects
but can see
close objects

Series Combination

Resistors are connected end to end and current has a single path ^{through} the circuit

$$V = V_1 + V_2 + V_3$$

$$I = I_1 = I_2 = I_3$$

Parallel Combination

one end of each resistor is connected with positive terminal of the battery while other end of each resistor is connected with negative terminal of the battery.

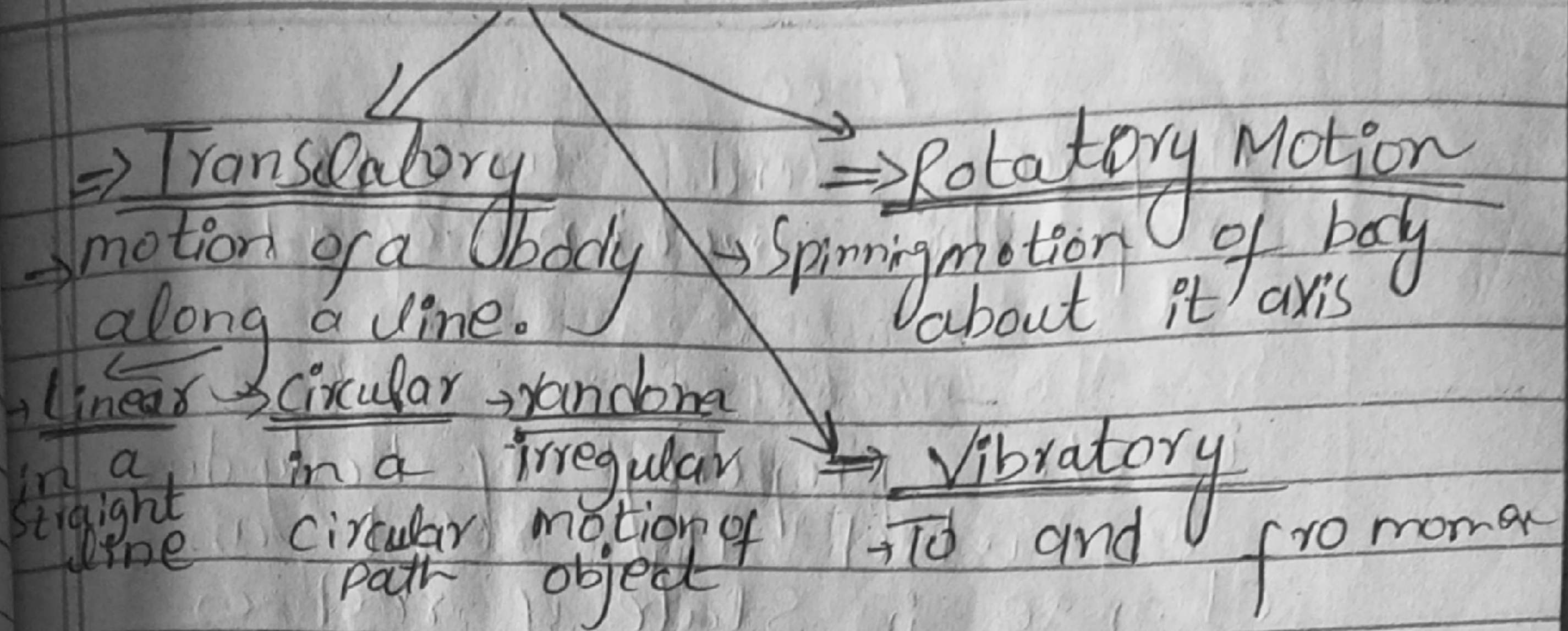
$$V = V_1 = V_2 = V_3$$

$$I = I_1 + I_2 + I_3$$

$$\text{Force} = \text{Kgm s}^{-2}$$

$$MLT^{-2}$$

Motion



* First equation of Motion

$$V_f = V_i + at$$

* Second equation of Motion

$$S = V_i t + \frac{1}{2} at^2$$

* Third equation of Motion

$$2as = V_f^2 - V_i^2$$

Equation of Motion of ^{bodies} under gravity

First:

$$V_f = V_i + gt$$

Second:

$$h = V_i t + \frac{1}{2} gt^2$$

Third:

$$2gh = V_f^2 - V_i^2$$