NOTES

In laws of motion, first thing is to understand INERTIA and types : Rest, Motion and Direction

All the THREE laws of motion in statement.

Mathematically **F** = m**a** and $\vec{F} = \frac{d\vec{p}}{dt}$ that is force is rate of change of momentum

Conservation of momentum, BUT remember it is used on system when EXTERNAL FORCE is zero.

Impulse or Impulsive Force

Whenever force is applied for very small amount of time. Product of Force and small time (dT) over time interval is Impulse. It is mathematically equal to rate of change of momentum . F.dt = m.dv

Equilibrium. Here we mean Mechanical equilibrium, since by this chapter we have not started rotational motion. Hence we are confined to Translational Forces only.

NO net FORCE in any component if body is in equilibrium.

In third law equal and opposite forces are in picture?

But have you noticed they despite of being equal and opposite don't cancel each other.

Reason is that they act on different bodies.

Now after that it is time to understand the laws of friction,

Here also MOST importantly you have to remember two aspects , Firstly frictional force is self adjusting till its maximum value and secondly friction direction is opposite to relative Impending Motion.

SO far constrained motion is concerned, i.e. pulley etc, please NOTE for complicated pulley etc system the QUESTIONS have not yet been asked. Only the basic SYSTEM.

That is evident from previous years papers also.

Banking of Roads is another example of frictional forces, whereby you have to calculate the safe speed.

Remember in connected motion our ideal ROPE is mass less and hence tension at each point is same. Also the rope is inextensible. So acceleration of all blocks connected to it will have same accdeleration