formulas

$v = u + at$	$s = ut + 1/2at^2$	$v^2=u^2+2as$
Slope of x–t → velocity	Slope of v–t → acceleration	Area under v–t → displa-cement
$F = ma$	$p = mv$ (momentum)	$J = F \cdot t$ (impulse)
$f = \mu N$	$W = Fscos\theta$	$U = mgh$
$K = 1/2 mv^2$	$P = W/t$ (power)	$\tau = rFsin\theta$ (torque)
$K= 1/2 I\omega^2$	$v=r\omega$ (relation)	$\omega = d\theta/dt$
$F = G \cdot M \cdot m/r^2$	$g = GM/R^2$ (acc. due to g)	$U = -G \cdot M \cdot m/r$
Stress = F/A	Strain = ΔL/L	Y = Stress/Strain (young's modulus)
P = F/A (press-ure)	$P = \rho gh$	$F = \rho gV$
$A_1v_1 = A_2v_2$ (conti-nuity)	$P + 1/2\rho v^2 + \rho gh$ = constant (bernoulli)	$Q = mc\Delta T$
$\Delta Q = \Delta U+W$	$W = P\Delta V$	$PV = nRT$
$x = Asin(\omega t)$ {shm eqn.}	$v = \omega \sqrt{(A^2-x^2)}$	$a = -\omega^2x$
$T = 2\pi/\omega$	$v = f\lambda$	$f = 1/T$

what to write?

-Aim
-Apparatus Required
-Formula/Principle
-Procedure (steps)
-Observation table
-Result
-Precautions
-Measure 4 or 3 times atleast → avg

Simple Pendulum

acc. due gravity using simple pendulum

$T=2\pi \sqrt{(l/g)}$

Measure time for 20 oscillations

metallic bob with a hook, an iron stand with a clamp, a split fork, a fine & strong thread, vernier caliper, stopclock, meter scale

What affects T? → length (NOT mass)

Calorimeter → Volume

internal diameter, depth → volume

vernier calliper, calorimeter

$V=\pi r2h$

Screw Gauge

Wire → Volume

$V=\pi r2l$

Principle of Moments (Meter Scale)

mass of body, using meter scale

meter scale, glass prism, load of unknown mass "m_2", known mass m_1, thread

$\tau = F*d$

anticlockwise → positive

clockwise → negative

Clockwise moment = Anticlockwise moment

$W1 \times d1 = W2 \times d2$

Parallelogram Law of Vectors

weight using vector addition

Gravesend's apparatus, 2 hangers with slotted wt., given body, strong & thin thread, sheet, drawing pins, mirror strips, half meter scale, compass

Two forces at angle → resultant is diagonal

Sonometer (Frq. of Tuning Fork)

sonometer along with hanger and slotted wt., tuning fork, rubber pad, screw gauge, paper rider

$f=(1/2l)* \sqrt{(T/M)}$

→ T = mg (tension)

→ M = mass/length of wire (linear mass density)

$\rightarrow M = \pi r2\rho$

ρ → density of brass = 8.5 g/cm^3

Spring Constant (Hooke's Law)

force of helical spring, by plotting a graph b/w load and extension

Force ∝ extension (k)

F = - k*l

k → stiffness of spring → spring const.

(-) → restoring force acts in opp. dir. to applied force

graph - strgt. line → obeys hooks law

slope = k

k = change in f/change in l

Fortin's Barometer (atm p)

fortins barometer with att. vernier scale, meter scale

$P=h\rho g$

ρ → density of mercury

h → ht. of mercury column

Why mercury? → high density, low vapor pressure