IMPORTANT FORMULAE

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1. Velocity: Rate of Change of Displacement

$$\text{Velocity} = \frac{\text{Displacement}}{\text{Time}}$$

2. Acceleration: Rate of Change of Velocity

$$\text{acceleration} = \frac{\text{final velocity - initial velocity}}{\text{time}}$$

3. Speed: Rate of Change of Distance

$$\text{speed} = \frac{\text{Distance}}{\text{Time}}$$

4. Force (N)

F=mass x acceleration

5. Spring Constant (N/cm)

$$\text{spring constant} = \frac{\text{Force}}{\text{Extension of spring}}$$

6. Density (kg/m^3 or g/cm^3)

$$\text{Density} = \frac{\text{Mass}}{\text{Volume}}$$

7. Moment(Nm)

Moment= F x d

8. Pressure (Solid)

Pressure = Force / Area

9. Pressure (Liquid)

Pressure = Height x Density X Gravity

10. Kinetic Energy (motion)

K.E. = 1 / 2 x mass x $velocity^2$

11. Gravitational Potential Energy (Height)

G.P.E. = mass x gravity x height

12. Work Done

W.D. = Force x Displacement

13. Momentum (Elastic)

$m_1u_1 + m_2u_2 = m_1v_1 + m_2v_2$

momentum before = momentum after

14. Momentum (Inelastic)

$m_1u_1 + m_2u_2 = (m_1+m_2)v$

momentum before = momentum after

15. Boyle's Law

$P_1V_1 = P_2V_2$

Before = After

16. Specific Heat Capacity $Q = mc\Delta T$

Q - Heat Energy (J)
m - mass (kg)
c - specific heat capacity (J/kg°C)
T - change in temperature (°C)

17. Specific Latent Heat $Q = ml$

Q - Heat Energy (J)
m - mass (kg)
l - specific latent heat (J/kg)

18. Speed of Waves

speed = frequency x wavelength

19. Refractive Index (Angle)

$n = \frac{\sin i}{\sin r}$ i = angle of less dense medium
r = angle of denser medium

20. Refractive Index (Speed)

$n = \frac{c}{v}$ c = speed of light in air/vacuum ($3x10^8$ m/s)
v = speed of light in medium

21. Refractive Index (Critical Angle)

$n = \frac{1}{\sin c}$ c = critical angle

22. Current $Q = IT$

Q = charge (C)
I = current (A)
T = time (s)

23. Potential Difference $V = W/Q$

V = potential differnce (V)
W = work done (J)
Q = charge (C)

24. Ohm's Law $V = IR$

V = potential difference (V)
I = current (A)
R = resistance(Ω)

25. Power $P = VI$

P = power (W)
I = current (A)
V = potential difference (V)