List of Important Formulae

1.	Absolute Error	$E = Y_n - X_n$	Where E = Absolute Error Y_n – Expected value X_n – measured value
2.	Accuracy	$A = 1\left\|\frac{Y_n - X_n}{X_n}\right\|$	
3.	Deflecting torque	$\tau_d = B \times A \times N \times I$	
4.	Shunt resistance for Ammeter	$R_{sh} = \frac{I_m R_m}{I - I_m}$	
5.	Multiplier for Voltmeter	$R_s = \frac{V}{I_m} - R_m$	
6.	Multiplier for Voltmeter	$R_s = S \times$ Range – Internal Resistance	Where $S = 1/I_{\text{fsd}}$
7.	Multiplier resistor for AC range	$R_s = \frac{0.45 \times E_{\text{rms}}}{I_{dc}} - R_m$	
8.	R_1 and R_2 for an Ohmmeter	$R_1 = R_h - \frac{If_{sd} R_m R_h}{V}$ $R_2 = \frac{If_{sd} R_m R_h}{V - If_{sd} R_m}$	
9.	Sensitivity of digital meters	$S = (f_s)_{\min} \times \text{R}$	Where $(f_s)_{\min}$ –lowest full scale on meter $R = 1/10^n$ n = number of full digits

10.	Resistance value for Wheatstone's Bridge	$R_x = \frac{R_2 R_3}{R_1}$	Where e = Absolute Error Y_n – Expected value X_n - measured value
11.	Maxwell's Bridge	$R_x = \frac{R_2 R_3}{R_1}$ and $L_x = C_1 R_2 R_3$ $Q = w\, C_1 R_1$	
12.	Hay's Bridge	$L_x = \frac{R_2 R_3 C_1}{1 + wC_1 R_1}$ $R_x = \frac{wC_1 R_2 R_3}{1 + wC_1 R_1}$	
13.	Schering Bridge	$R_x = \frac{R_2 C_1}{C_3}$ $C_x = \frac{R_1 C_3}{R_2}$	
14.	Wien's Bridge	$R_2/R_4 = 2$ and $f = \frac{1}{2\pi RC}$	
15.	Resistance	$R = \frac{\sigma x l}{A}$	
16.	Gage factor	$GF(K) = \frac{\Delta R/R}{\Delta l/l}$	
17.	Resistance of conductor	$R_t = R_{\text{ref}}(1 + \alpha \Delta t)$	
18.	For a Dual Slope DVM	$e_i = \frac{n^2 xer}{n_1}$	
19.	Input capacitance of a CRO probe	$C_1 = \frac{R_{in}(C_{in} + C_2)}{R_1}$	

20.	Distributed capacitance	$C_s = \dfrac{C_1 - 4C_2}{3}$
21.	Closed loop voltage for Non-Inverting Amplifier	$A_F = \left(1 + \dfrac{RF}{R_1}\right)$
22.	Closed loop voltage for Non-Inverting Amplifier	$A_F = \left(-\dfrac{RF}{R_1}\right)$
23.	Output voltage of an Instrumentation Amplifier	$A_F = \left(1 + \dfrac{2R_2}{R_1}\right)(e_2 - e_1)$