Miniboard Parallel Trainer **edtechtrainers.com**

WORKSHEET
Parallel P1

Student Name_____date_____MB#_____

Students should be able to Calculate, Measure and Compare fundamental characteristics of a parallel circuit.

- **Measure (A):** The student will use a Digital Multimeter (DMM), to measure the current (I), voltage (E), and resistance (R) for the Circuit on the P1 circuit on the Miniboard Parallel Trainer (simulator).
- **Calculate(B):** The student will use the principles of ohms law to calculate, current (I), voltage (E), and resistance (R) for the P1 Circuit using the measurements taken with the DMM on the Miniboard Parallel Trainer (simulator) Part A.
- **Compare (C):** The student will then compare the results of the measurements taken and those calculated using the DMM measurements to compare.

Part A Measure

Measuring Voltages:

Measure and record Battery Voltage (a)_____

Measure and record Total Voltage Drop for series circuit P1 (b) _____

Measuring Resistance:

Measure and Record total resistance (Rt) or circuit P1 (c)_____

Measuring Amperage for circuit P1

Measure and Record the amperage of circuit P1 (d)_____

Part B Calculate

Calculate Resistance Total for circuit P1 (E / I)

Using the value of the resistors according to color code bands or instructor might supply resistance values to the student. (as learned above measuring individual resistance values with a DMM are not possible in a Parallel circuit for this reason another method must be used to find individual resistance values)

R1 resistance (circle one color bands or provided) (e)_____

R2 resistance (circle one color bands or provided) (f)_____

Calculate resistance total (Rt) using parallel formulas (g)_____

Calculate Amperage (E / R) = I
Current flow through any resistor is dependent on the resistance of the resistor. Therefor it must be calculated for each resistor by multiplying resistance of the individual resistor by the total amperage for the circuit (It). Then sum the amperage's for each resistor, this should total the total circuit (It) for P1.

Calculate amperage for

R1 amperage (b / e) (h)_____

R2 amperage (b / f) (i)_____

P1 (It) amperage total sum _____

Since the amperage has been calculated for R1 and R2 resistance can be calculated for R1 and R2 :

Calculate the resistance for R1 (b / h)_____

Calculate the resistance for R2 (b / i)_____

Calculate Voltage (R X I)

Calculate P1 total Voltage Drop (c x d)_____

Part C Compare: (readings should be within the greatest resistor tolerance 5%)

Voltages	**Measured**	**Calculated**	**< 5% Difference Y / N**
P1 Voltage Drop (Et)			
Resistance	**Measured** **circle one**	**Calculated**	
R1 resistance	/Bands or Provided		
R2 resistance	/Bands or Provided		
P1 resistance total (Rt)			
Amperage	**Measured**	**Calculated**	
R1 amperage	NA		NA
R2 amperage	NA		NA
P1 amperage total (It)			