Title: **Combination Circuits** Quiz: 6

Course: Electrical Applications Unit: Electrical Theory CLO: 3

Name ANSWER KEY Grade 50pts Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Objectives**

1. Student shall calculate various electrical quantities for a combination circuit based on the Ohm’s Wheel.

**Assessment**

Students shall demonstrate a comprehension of the objectives listed above by scoring a minimum of 75% on this Quiz. Grading shall be based on an answer key.

**Circuits**



Where

ES = 6V, R1 = 240Ω, R2 = 720Ω, R3 = 1.4kΩ, R4 = 160Ω

RAB = 475.472Ω RT = 875.472Ω IT = 6.853mA

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | P | I | R | E |
| R1 | 11.273mW | 6.853mA | 240Ω | 1.645V |
| R2 | 14.748mW | 4.526mA | 720Ω | 3.259V |
| R3 | 7.585mW | 2.328mA | 1.4KΩ |
| R4 | 7.515mW | 6.853mA | 160Ω | 1.097V |
| Total | 41.121mW | 6.853mA | 875.472Ω | 6V |



Where

ES = 21V, R1 = 380Ω, R2 = 2.1kΩ, R3 = 4.4kΩ, R4 = 8kΩ, R5 = 225Ω, R6 = 15Ω

RAB = 2.48kΩ RCD = 12.625kΩ RT = 14.892Ω IAB = 8.468mA ICD = 1.663mA

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | P | I | R | E |
| R1 | 27.247mW | 8.468mA | 380Ω | 3.218V |
| R2 | 150.576mW | 2.1kΩ | 17.782V |
| R3 | 12.174mW | 1.663mA | 4.4kΩ | 7.319V |
| R4 | 22.134mW | 8kΩ | 13.307V |
| R5 | 622.527μW | 225Ω | 374.257mW |
| R6 | 29.4W | 1.4A | 15Ω | 21V |
| Total | 29.613W | 1.41A | 14.892Ω | 21V |

1. A *complex* combination circuit can also be thought of as a;
   1. A series circuit that has a parallel component inside of it.
   2. A parallel circuit that has a series component inside of it.
   3. Any combination of a series circuit and a parallel circuit.
   4. None of the above
2. Regardless of the type of circuit, series-parallel, parallel-series or complex combination circuit, total power will always be the sum of individual component power?
3. True
4. False