Title: **Power Triangle** Test: 14

Course: Electrical Applications Unit: Electrical Theory CLO: 3

Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Grade \_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Objectives**

1. Student shall identify specific characteristics of power as it relates to an inductive circuit.
2. Student shall calculate various active power, reactive power and apparent power quantities based on given information.

**Assessment**

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

**Instructions**

Select the best answer to each multiple-choice question below.

1. The power triangle exists in any circuit that contains a reactive component?
2. True
3. False
4. The phase angle that exists in the impedance triangle can be a different value from that of the power triangle.
5. True
6. False
7. Power Factor can be calculated by;
8. All the above
9. Increasing the amount of inductance in a RL circuit will:
10. Increase the need for apparent power
11. Decrease the active power
12. Have no effect on the power
13. Reactive power is represented by the letter(s) \_\_\_ in mathematical formulas.
14. S
15. VA
16. VAr
17. Q
18. The active power in a resistive only circuit can be represented in?
19. S
20. VA
21. VAr
22. Q
23. Apparent power is represented by the letter(s) \_\_\_ in mathematical formulas.
24. S
25. VA
26. W
27. Q
28. Active power is measured in?
29. S
30. VA
31. W
32. Q
33. Increasing the amount of resistance in an RL circuit will \_\_\_\_\_\_\_ the PF.
34. increase
35. decrease
36. have no effect on
37. Decreasing the phase angle means that the circuits reactance has?
38. Increased
39. Decreased
40. Remained the same

**Instructions**

Given the figure below, match the component with it’s appropriate quantity.



|  |  |
| --- | --- |
| 1. Apparent Power \_\_\_\_\_\_ | 1. Phase Angle \_\_\_\_\_ |
| 1. Active Power \_\_\_\_\_\_ | 1. Reactive Power \_\_\_\_\_ |

**Instructions**

Determine the unknown quantities from the given values from within the power triangle.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | P | Q | S | θ |
|  | 550W |  | 990VA |  |
|  | 1275W | 480VAr |  |  |
|  | 4kW |  | 5.8kVA |  |
|  |  | 330VAr |  | 32˚ |
|  | 330W |  |  | 21.34˚ |
|  | 1.2kW | 397.21VAr |  |  |
|  |  |  | 1217VA | 15.76˚ |
|  |  | 23VAr | 143VA |  |
|  |  | 1kVAr |  | 22.5˚ |
|  | 1514W | 316.2VAr |  |  |