Title: **Transformers** Test: 12

Course: Electrical Applications Unit: Electrical Theory CLO: 3

Name ANSWER KEY Grade 25pts. Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Objectives**

1. Student shall identify specific characteristics of a transformers.
2. Student shall calculate various voltage, current 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. Increasing the turns ratio in the secondary of a transformer will:
2. Increase the power in the primary
3. Increase the current in the secondary
4. Increase the voltage in the secondary
5. Decrease resistance in the secondary
6. Decreasing the turns ratio in the secondary of a transformer will:
7. Decrease the power in the secondary
8. Decrease the current in the secondary
9. Increase the voltage in the secondary
10. Increase the current in the secondary
11. A transformer has a turns-ratio of 4:1, the current in the secondary is 12.5 mA, what is the primary current?
12. 39.063mA
13. 3.125mA
14. 781.25µA
15. 320µA
16. A transformer has a turns-ratio of 1:5; the primary voltage is 3.2 V, what is the secondary voltage?
17. 16V
18. 640mV
19. 1.087V
20. 5.435V
21. Transformers operate by the principle of:
22. Mutual attraction
23. Electromagnetic Induction
24. Coefficient of coupling
25. Inductive reactance
26. A transformer with a turn's ratio of 6:1 has 72V across 720Ω load. What is the amount of primary current?
27. 10mA
28. 600mA
29. 6A
30. 16.667mA
31. A transformer has which type of connection between the primary and the secondary?
32. Electric
33. Magnetic
34. Electronic
35. Continuity

Question 8, refer to the Figure #1 below.



Transformer Rating = 10VA, IP = 2, 100% Efficient

1. If the secondary voltage is 1 volt, what is the turn's ratio?
2. 2:1
3. 5:1
4. 1:2
5. 1:5
6. A step-down transformer could have which type of turn's ratio?
7. 1:10
8. 10:1
9. 1:1
10. 10:10
11. A step-up transformer has 100 primary turns and 600 secondary turns. If the primary voltage is 50V and the secondary current is 20mA, what is the amount of primary current?
12. 300mA
13. 120mA
14. 3.33mA
15. 2.5mA
16. A step-down transformer has a ratio of 8:1 and the primary voltage is 120V. The secondary is rated at 240VA. What is the primary VA?
17. 9.6VA
18. 240VA
19. 960VA
20. 30VA
21. The actual number of turns of a transformer is 1600 on the primary and 400 on the secondary. This type of transformer will:
22. Increase the amount of secondary voltage.
23. Decrease the amount of secondary current.
24. Increase the amount of secondary current.
25. Decrease the amount of secondary power.
26. A transformer has the primary voltage of 240V and a secondary voltage of 24V. This transformer is known as a/an:
27. Step-up transformer
28. Step-down transformer
29. Isolation transformer
30. Autotransformer
31. Which of the listed is a power loss caused by changing magnetic fields inducing a voltage that produces short spirals of circular current in the core of the transformer?
32. Eddy Current
33. Hysteresis
34. Permeability
35. Leakage Flux
36. The load is connected to the \_\_\_\_\_\_\_\_\_\_ and the source voltage is connected to the \_\_\_\_\_\_\_\_\_\_\_\_ of a transformer.
37. Primary/secondary
38. Secondary/primary
39. Secondary/secondary
40. It does not matter
41. A transformer has a primary voltage of 12.8kV and a secondary voltage of 240V. The transformer is rated at 150kVA. What is the maximum primary current for this transformer?
42. 1.172kA
43. 117.188mA
44. 625A
45. 11.719A
46. A step-down transformer has a ratio of 10:1. The primary voltage is 12V. The secondary current is 8A. What is the secondary VA?
47. 9.6VA
48. 240VA
49. 960VA
50. 30VA
51. A step-up transformer has 1000 turns to 6000 turns. The primary current is 50mA, the secondary current is\_\_\_\_\_\_\_\_\_
52. 300mA
53. 120mA
54. 8.33mA
55. 2.5mA
56. The primary voltage is 100V; the secondary current is 6mA at 50mVA. This transformer has a ratio of;
57. 12:1
58. 1:12
59. 6:1
60. 1:6
61. The primary purpose of a transformer is to step up, step down or isolate AC voltages.
62. True
63. False
64. The transformer allows us to increase or decrease the voltage, or increase or decrease the current as we apply it to various situations.
65. True
66. False
67. Transformers operate on both AC and DC sources.
68. True
69. False
70. The conductor size and the number of turns dictate the maximum current and voltage the transformer can handle without overheating or being destroyed.
71. True
72. False
73. The main purpose of most transformers is to transfer energy while changing the \_\_\_\_\_\_\_\_\_\_\_\_\_ level of the circuit between the primary and secondary.
74. VA
75. Ohms
76. Power
77. Voltage
78. The power rating of the transformer is rated in \_\_\_\_\_\_-\_\_\_\_\_\_\_.
79. Ohm-Amps
80. Volt-Amps
81. Volt-Ohms
82. Henry-Amps