Final Exam – DC Circuits

1. The voltage drop across a 100 ohm resistor is V = 0.2V. The current through the resistor is _____.

    a. 0.025 A
    b. 0.003 A
    c. 0.002 A
    d. 0.004 A

2. The current through a 5 kΩ resistor is 0.1 mA. The voltage drop across the resistor is _____.

    a. 4 V
    b. 0.1 V
    c. 3 V
    d. 0.5 V

3. The voltage drop across a resistor is 0.5 V. The current through the resistor is 0.2 mA. The resistance of the resistor is _____.

    a. 2500 Ω
    b. 250 Ω
    c. 1470 Ω
    d. 3000 Ω

4. A 100 Ω resistor has a current of 40 mA running through it. The power dissipated through the resistor is _____.

    a. 0.08 W
    b. 0.16 W
    c. 1 W
    d. 0.32 W

5. The resistor in the problem above is used in a circuit with the same power dissipation. A minimal acceptable power rating for this resistor is _____.

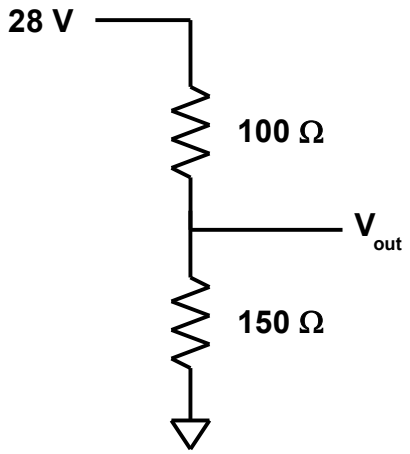
    a. 0.1 W
    b. 0.08 W
    c. 0.2 W
    d. 0.05 W

6. Three resistors are connected in series having values of 150 Ω, 200 Ω, and 350 Ω. The total resistance is _____.

    a. 700 Ω
    b. 350 Ω
    c. 200 Ω
    d. 70 Ω

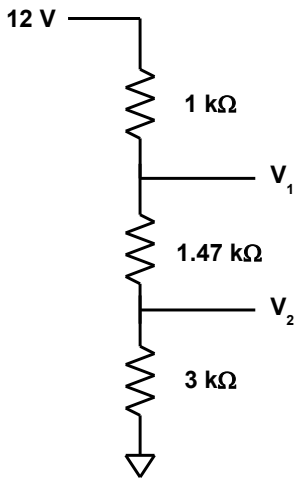
7. Two resistors are connected in parallel having values of 4.7 kΩ and 10 kΩ. The total resistance is _____.

    a. 1.47 kΩ
    b. 5.17 kΩ
    c. 4.70 kΩ
    d. 3.20 kΩ



8. The output voltage of the voltage divider shown above is _____.

    a. 20.4 V
    b. 16.8 V
    c. 28.0 V
    d. 12.1 V



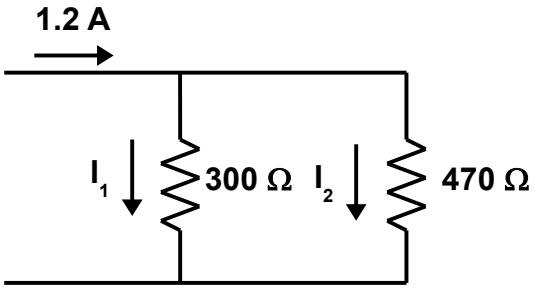
9. The output voltage, V_1, of the voltage divider shown above is _____.

    a. 9.81 V
    b. 8.87 V
    c. 10.3 V

d. 7.46 V

10. The output voltage, V_2, of the voltage divider in the previous problem is _____.

a. 5.13 V
b. 7.24 V
c. 5.73 V
d. 6.58 V

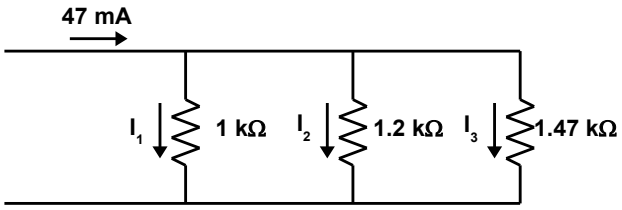


11. The branch current, I_1, in the current divider shown above is _____.

a. 0.648 A
b. 0.632 A
c. 0.732 A
d. 0.823 A

12. The branch current, I_2, in the current divider in the previous problem is _____.

a. 0.672 A
b. 0.468 A
c. 0.734 A
d. 0.832 A



13. The branch current, I_1, in the current divider shown above is _____.

a. 17.3 mA
b. 16.8 mA
c. 19.5 mA
d. 18.7 mA

14. The branch current, I_2, in the current divider in the previous problem is _____.

a. 15.6 mA

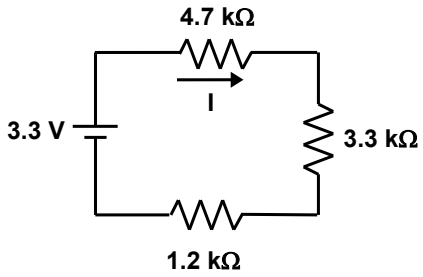
b. 17.8 mA
c. 12.2 mA
d. 9.87 mA

15. The branch current, I_3, in the current divider in the previous problem is _____.

a. 13.3 mA
b. 15.2 mA
c. 12.7 mA
d. 21.3 mA

16. Voltage is added when flowing through a source, and subtracted when flowing through a resistor. Conventional current flow is defined as the same direction as _____ charges flow.

a. negative
b. no
c. positive
d. all



17. For the series circuit shown above, the current I in the circuit is _____.

a. 642 µA
b. 267 µA
c. 481 µA
d. 359 µA

18. The voltage drop in the 4.7 kΩ resistor in the series circuit in the previous problem is _____.

a. 2.73 V
b. 1 .12 V
c. 3.72 V
d. 1.69 V

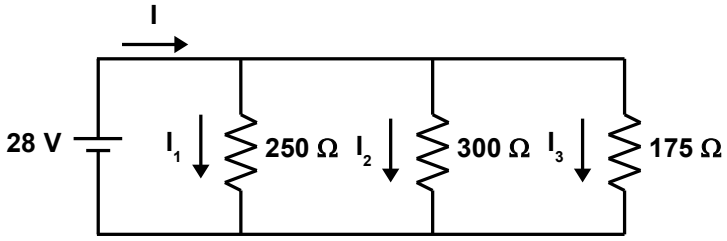
19. The voltage drop in the 3.3 kΩ resistor in the series circuit in the previous problem is _____.

a. 1.18 V
b. 2.68 V

c. 0.432 V
d. 3.12 V

20. The voltage drop in the 1.2 kΩ resistor in the series circuit in the previous problem is _____.

a. 0.213 V
b. 0.430 V
c. 1.75 V
d. 0.127 V



21. For the parallel circuit shown above, the current I_1 is _____.

a. 0.212 A
b. 0.416 A
c. 0.314 A
d. 0.112 A

22. For the parallel circuit in the previous problem, the current I_2 is _____.

a. 0.127 A
b. 0.213 A
c. 0.0933 A
d. 0.372 A

23. For the parallel circuit in the previous problem, the current I_3 is _____.

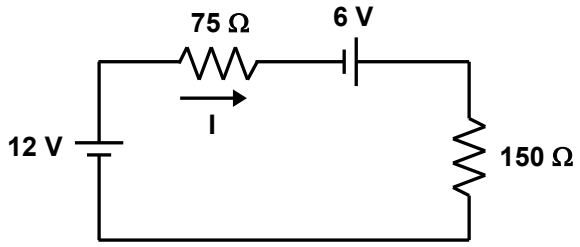
a. 0.160 A
b. 0.153 A
c. 0.172 A
d. 0.281 A

24. For the parallel circuit in the previous problem, the total current I is _____.

a. 0.214 A
b. 0.576 A
c. 0.365 A
d. 0.127 A

25. For the parallel circuit in the previous problem, the voltage drop across the resistors is _____.

a. 14 V
b. 28 V
c. 32 V
d. 17 V



26. In the circuit shown above, the current I is _____.

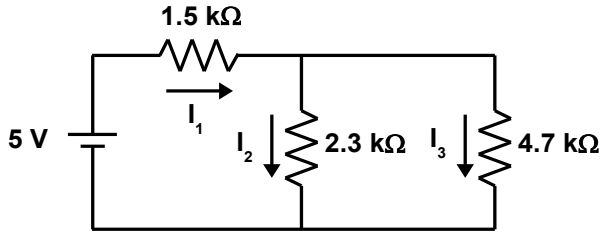
a. 0.12 A
b. 0.05 A
c. 0.17 A
d. 0.08 A

27. In the circuit in the previous problem, the voltage drop in the 75 Ω resistor is _____.

a. 6 V
b. 8 V
c. 10 V
d. 12 V

28. In the circuit in the previous problem, the voltage drop in the 150 Ω resistor is _____.

a. 6 V
b. 8 V
c. 12 V
d. 10 V



29. In the circuit shown above, the current I_1 is _____.

a. 2.73 mA
b. 3.67 mA

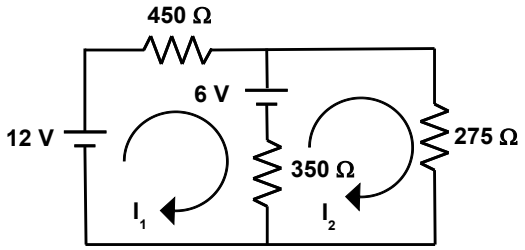
c. 0.157 mA
d. 1.64 mA

30. In the circuit in the previous problem, the current I_2 is _____.

a. 2.35 mA
b. 0.812 mA
c. 3.72 mA
d. 1.10 mA

31. In the circuit in the previous problem, the current I_3 is _____.

a. 0.214 mA
b. 0.0126 mA
c. 0.540 mA
d. 0.725 mA

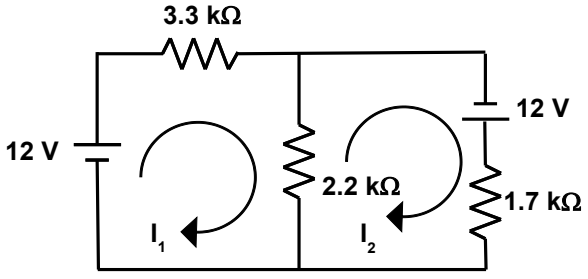


32. In the circuit shown above, the mesh current I_1 is _____.

a. 0.0155 A
b. 0.0286 A
c. 0.127 A
d. 0.00861 A

33. In the circuit in the previous problem, the mesh current I_2 is _____.

a. 0.0297 A
b. 0.372 A
c. 0.218 A
d. 0.0183 A



34. In the circuit shown above, the mesh current I_1 is _____.

a. 4.41 mA
b. 2.76 mA
c. 8.23 mA
d. 5.91 mA

35. In the circuit in the previous problem, the mesh current I_2 is _____.

a. 8.71 mA
b. 1.23 mA
c. 5.56 mA
d. 2.42 mA

36. A series circuit has _____ path(s) for current flow.

e. two
f. one
g. multiple
h. no

37. A parallel circuit has _____ path(s) for current flow.

a. only one
b. only two
c. multiple
d. no

38. It is ok to dissipate 10 watts of power through a resistor that is rated for 2 watts.

a. False
b. True

39. Power dissipation in a resistor _____ as resistance increases.

a. increases
b. decreases
c. stays the same
d. none of the above

40. Voltage equals _____ times resistance.

a. voltage
b. resistance
c. power
d. current

41. The equation in the above problem is known as _____ Law.

a. Tesla's
b. Maxwell's
c. Ohm's

d. Faraday's

42. An ohm is defined as the electrical resistance between two points of a conductor when a constant potential difference of _____, applied to these points, produces in the conductor a current of 1 amp.

    a. 0 volts
    b. 1 volt
    c. 1000 volts
    d. 2 volts

43. In order to determine the current through a resistor, you must know the resistance as well as the _____ across the resistor.

    a. voltage
    b. capacitance
    c. inductance
    d. magnetic field strength

44. Power is measured in _____.

    a. Watts
    b. Ohms
    c. Volts
    d. Joules

45. In order to find the total resistance in a series circuit, you must _____ each resistor value.

    a. subtract
    b. multiply
    c. add
    d. divide