



McRoberts Secondary

Circuits Unit Test 2025-12-17



Personal Data

Family Name:
Given Name:
Signature:
checked

Registration Number

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In this section **no** changes or modifications must be made!

Scrambling

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Type

020

Exam ID(Physics 11)

25121700003

Please mark the boxes carefully: ☒ Not marked: ☐ or ☐

This document is scanned automatically. Please keep clean and do not bend or fold. For filling in the document please use a **blue or black pen**.

Only clearly marked and positionally accurate crosses will be processed!

Answers 1 - 15

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	a	b	c	d

Answers 16 - 20

	a	b	c	d
16	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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19	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	a	b	c	d



1. Which device can be used to measure the current in a circuit?
 - a. voltmeter
 - b. ohmmeter
 - c. ammeter
 - d. currentometer
2. Car batteries are rated in "amp-hours". This is a measure of their
 - a. electric charge
 - b. current
 - c. energy density
 - d. energy capacity
3. A battery is rated at 12 V and 1100 mAh. How much energy does the battery store at full charge?
 - a. 88.4 kJ
 - b. 48 kJ
 - c. 41 kJ
 - d. 27.9 kJ
4. What voltage is applied across a $4\ \Omega$ resistor if the current is 7.8 A?
 - a. 40 V
 - b. 31 V
 - c. 2 V
 - d. 6.6 V
5. A lamp draws a current of 8 A when it is connected to a 7.5 V source. What is the resistance of the lamp?
 - a. $0.94\ \Omega$
 - b. $16\ \Omega$
 - c. $1.1\ \Omega$
 - d. $60\ \Omega$
6. A lamp with a resistance of $6.8\ \Omega$ is placed across a potential difference of 8.5 V. What is the current through the lamp?
 - a. 0.65 A
 - b. 0.8 A
 - c. 0.96 A
 - d. 1.2 A
7. A voltage source of 8 V delivers a current of 5.3 A to an electric motor that is connected across its terminals. What power is consumed by the motor?
 - a. 42 W
 - b. 37 W
 - c. 29 W
 - d. 7 W

8. A space heater with a resistance of $9.3\ \Omega$ operates at a voltage of 117 V . How much energy does the space heater use in 9.1 hours?
- 6.7 kWh
 - 13 kWh
 - 8.2 kWh
 - 9.6 kWh
9. As more resistors are added in **series** to a constant voltage source, the power supplied by the source
- increases.
 - decreases.
 - remains the same.
 - not enough information.
10. Three resistors are connected in **series**. Their resistances are $68\ \Omega$, $60\ \Omega$, and $38\ \Omega$. What is the equivalent resistance of the resistors?
- $17\ \Omega$
 - $140\ \Omega$
 - $320\ \Omega$
 - $170\ \Omega$
11. When different resistors are connected in series, it is true that
- the potential difference across each is the same.
 - the power dissipated in each is the same.
 - the same current flows in each one.
 - the total resistance is equal to the greatest resistance of any individual resistor.
12. You have a $5\ \Omega$ light bulb and a $10\ \Omega$ light bulb. You make a circuit that places them in series across a battery. Which light bulb is brighter?
- The $5\ \Omega$ bulb is brighter.
 - The $10\ \Omega$ bulb is brighter.
 - Both bulbs glow at the same brightness.
 - It depends on the voltage.
13. A total of 993 resistors, all with resistance $765\ \Omega$, are connected in **parallel**. What is the equivalent resistance of the resistors?
- $0.5\ \Omega$
 - $0.59\ \Omega$
 - $0.77\ \Omega$
 - $0.41\ \Omega$
14. A total of 945 Christmas light bulbs, all with resistance $817\ \Omega$, are connected in **series**. What is the equivalent resistance of the lights?
- $850\text{ k}\Omega$
 - $1100\text{ k}\Omega$
 - $770\text{ k}\Omega$
 - $960\text{ k}\Omega$

15. Two resistors are connected in **parallel**. Their resistances are $465\ \Omega$ and $414\ \Omega$. A battery applies $1.6\ \text{V}$ to the combination. What is the current through the $465\ \Omega$ resistor?
- a. $3.8\ \text{mA}$
 - b. $2.2\ \text{mA}$
 - c. $3.4\ \text{mA}$
 - d. $5.5\ \text{mA}$
16. Two resistors are connected in **series**. Their resistances are $5\ \Omega$ and $8\ \Omega$. A difference in potential of $31\ \text{V}$ is applied to the combination. What is the current through the $8\ \Omega$ resistor?
- a. $1.5\ \text{A}$
 - b. $2.4\ \text{A}$
 - c. $2.1\ \text{A}$
 - d. $3.2\ \text{A}$
17. Two resistors are connected in **parallel**. Their resistances are $15\ \Omega$ and $35\ \Omega$. A battery applies $95\ \text{V}$ to the combination. What is the current drawn from the battery?
- a. $7.7\ \text{A}$
 - b. $9\ \text{A}$
 - c. $14\ \text{A}$
 - d. $11\ \text{A}$
18. Three resistors are connected in **parallel**. Their resistances are $28\ \Omega$, $89\ \Omega$, and $33\ \Omega$. What is the equivalent resistance of the resistors?
- a. $17\ \Omega$
 - b. $13\ \Omega$
 - c. $22\ \Omega$
 - d. $9.3\ \Omega$
19. A $600\ \text{mA}$ current flows into a parallel combination of a $95\ \Omega$ and a $67\ \Omega$ resistor. What current flows through the $95\ \Omega$ resistor?
- a. $250\ \text{mA}$
 - b. $170\ \text{mA}$
 - c. $370\ \text{mA}$
 - d. $340\ \text{mA}$
20. When a battery with an emf of $9.7\ \text{V}$ supplies a $1.7\ \text{A}$ current, its terminal voltage is $5.9\ \text{V}$. What is the internal resistance of the battery?
- a. $4.2\ \Omega$
 - b. $2.2\ \Omega$
 - c. $3.9\ \Omega$
 - d. $1.5\ \Omega$