AMT General – Fundamentals of Electricity Practice Exam (Sample)

Study Guide

BY EXAMZIFY

Everything you need from our exam experts!

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Introduction

Preparing for a certification exam can feel overwhelming, but with the right tools, it becomes an opportunity to build confidence, sharpen your skills, and move one step closer to your goals. At Examzify, we believe that effective exam preparation isn't just about memorization, it's about understanding the material, identifying knowledge gaps, and building the test-taking strategies that lead to success.

This guide was designed to help you do exactly that.

Whether you're preparing for a licensing exam, professional certification, or entry-level qualification, this book offers structured practice to reinforce key concepts. You'll find a wide range of multiple-choice questions, each followed by clear explanations to help you understand not just the right answer, but why it's correct.

The content in this guide is based on real-world exam objectives and aligned with the types of questions and topics commonly found on official tests. It's ideal for learners who want to:

- **Practice answering questions under realistic conditions,**
- **Improve accuracy and speed,**
- **Review explanations to strengthen weak areas, and**
- **Approach the exam with greater confidence.**

We recommend using this book not as a stand-alone study tool, but alongside other resources like flashcards, textbooks, or hands-on training. For best results, we recommend working through each question, reflecting on the explanation provided, and revisiting the topics that challenge you most.

Remember: successful test preparation isn't about getting every question right the first time, it's about learning from your mistakes and improving over time. Stay focused, trust the process, and know that every page you turn brings you closer to success.

Let's begin.

How to Use This Guide

This guide is designed to help you study more effectively and approach your exam with confidence. Whether you're reviewing for the first time or doing a final refresh, here’s how to get the most out of your Examzify study guide:

1. Start with a Diagnostic Review

Skim through the questions to get a sense of what you know and what you need to focus on. Your goal is to identify knowledge gaps early.

2. Study in Short, Focused Sessions

Break your study time into manageable blocks (e.g. 30 – 45 minutes). Review a handful of questions, reflect on the explanations.

3. Learn from the Explanations

After answering a question, always read the explanation, even if you got it right. It reinforces key points, corrects misunderstandings, and teaches subtle distinctions between similar answers.

4. Track Your Progress

Use bookmarks or notes (if reading digitally) to mark difficult questions. Revisit these regularly and track improvements over time.

5. Simulate the Real Exam

Once you're comfortable, try taking a full set of questions without pausing. Set a timer and simulate test-day conditions to build confidence and time management skills.

6. Repeat and Review

Don’t just study once, repetition builds retention. Re-attempt questions after a few days and revisit explanations to reinforce learning. Pair this guide with other Examzify tools like flashcards, and digital practice tests to strengthen your preparation across formats.

There’s no single right way to study, but consistent, thoughtful effort always wins. Use this guide flexibly, adapt the tips above to fit your pace and learning style. You've got this!

Questions

1. **How many instruments (voltmeters and ammeters) are installed correctly?**

   A. 0

   B. 1

   C. 2

   D. 3

2. **The working voltage of a capacitor in an ac circuit should be**

   A. Equal to the highest applied voltage.

   B. At least 20 percent greater than the highest applied voltage.

   C. At least 50 percent greater than the highest applied voltage.

   D. Less than the highest applied voltage.

3. **Energize the circuit with the fuel tank selector switch selected to the left-hand position. Using the schematic, identify the switches that will change position.**

   A. 5, 6, 11, 12, 13, 15, 16.

   B. 3, 5, 6, 7, 11, 13.

   C. 5, 9, 10, 11, 12, 13, 15.

   D. 4, 5, 7, 11, 12, 14.

4. **What quantity is associated with energy dissipation as heat due to resistance?**

   A. Heat

   B. Coulombs

   C. Ohms

   D. Watts

5. **In a parallel circuit, the total current drawn from the source is:**

   A. The current through each resistor is the same.

   B. The total current drawn from the source is greater than the current through either resistor individually.

   C. The voltage across each resistor is different.

   D. The total resistance equals the resistance of the largest resistor.

6. What does the ground symbol primarily provide in circuit diagrams?

A. A common reference point for voltages and a return path for current.

B. Indicates the location of the power source.

C. Shows that the circuit is isolated from earth.

D. Represents the load connection.

7. When different rated capacitors are connected in series in a circuit, the total capacitance is

A. Equal to the sum of all the capacitances.

B. Greater than the capacitance of the highest rated capacitor.

C. Less than the capacitance of the lowest rated capacitor.

D. Equal to the average of the capacitances.

8. With power to the bus and the fuel selector switched to the right-hand tank, how many relays in the system are operating?

A. Two.

B. Four.

C. Three.

D. Five.

9. Three 6 Ω resistors in parallel connected to a 28 V source. What is the total current drawn from the source?

A. 7 A

B. 28 A

C. 14 A

D. 56 A

10. If a thermal protector switch activates to prevent overheating damage to an electric motor, once the motor has cooled;

A. The circuit can be reset from the flight deck.

B. The motor will reset by itself.

C. The circuit protector is replaced by a maintenance crew.

D. The circuit must be replaced.

Answers

1. C
2. C
3. A
4. A
5. B
6. A
7. C
8. C
9. C
10. B

Explanations

1. How many instruments (voltmeters and ammeters) are installed correctly?

A. 0

B. 1

C. 2

D. 3

Voltmeter and ammeter must be wired in opposite ways to measure what you intend. A voltmeter should be connected in parallel with the component or section you're measuring, and it has a very high input resistance so it draws almost no current and doesn't change the circuit. An ammeter, on the other hand, must be placed in series with the load, and it should have very low resistance so it doesn't drop a noticeable voltage or divert current away from the circuit. In the given diagram, two instruments follow these correct practices: one is connected across the element to measure voltage, and the other is placed in series with the circuit to measure current. The others are not wired in the proper fashion, such as a voltmeter placed in series or across the wrong part of the circuit, or an ammeter connected in parallel, which would distort readings or even short parts of the circuit. Therefore, two instruments are installed correctly.

2. The working voltage of a capacitor in an ac circuit should be

A. Equal to the highest applied voltage.

B. At least 20 percent greater than the highest applied voltage.

C. At least 50 percent greater than the highest applied voltage.

D. Less than the highest applied voltage.

In an AC circuit the voltage across a capacitor swings with the waveform, so the capacitor must be rated to withstand the maximum instantaneous voltage it will see. That peak value is higher than the RMS value of the supply, and capacitors also have tolerances and can experience transient spikes. To avoid dielectric failure, you select a working voltage that provides a healthy margin above the highest voltage the circuit reaches. A margin of about 50% greater than the peak voltage is a common design guideline, offering protection against tolerances, aging, and brief transients. So the working voltage should be at least 50% higher than the highest applied voltage. For example, with a 120 V RMS supply (peak about 170 V), using a capacitor rated around 250 V gives that margin. The other options either offer too little margin, or no margin at all.

3. Energize the circuit with the fuel tank selector switch selected to the left-hand position. Using the schematic, identify the switches that will change position.

A. 5, 6, 11, 12, 13, 15, 16.

B. 3, 5, 6, 7, 11, 13.

C. 5, 9, 10, 11, 12, 13, 15.

D. 4, 5, 7, 11, 12, 14.

When the fuel tank selector is moved to the left, the left-hand pole closes and supplies power to the circuits connected on that side. In the schematic, that energizing path will cause the switches that are fed by that left-hand contact (and any related interlocks that depend on that path) to change state. The correct choice is the one that matches exactly the switches wired to that left-hand energizing line in the diagram. The other options would require energizing paths that aren't connected to the left-hand contact or would miss switches that are, so they don't correspond to the left-position energizing network.

4. What quantity is associated with energy dissipation as heat due to resistance?

A. Heat

B. Coulombs

C. Ohms

D. Watts

Energy converted by resistance shows up as heat—the thermal energy produced. As current flows through a resistor, electrical energy is transformed into thermal energy due to collisions of electrons with the lattice, which manifests as heat. The rate of this energy conversion is power, measured in watts, but the actual quantity associated with the energy dissipated as heat is heat (thermal energy). Coulombs are charge, Ohms are resistance, and watts describe the rate of energy transfer, not the heat energy itself.

5. In a parallel circuit, the total current drawn from the source is:

A. The current through each resistor is the same.

B. The total current drawn from the source is greater than the current through either resistor individually.

C. The voltage across each resistor is different.

D. The total resistance equals the resistance of the largest resistor.

In a parallel circuit, the current from the source splits among the different branches, and the total current is the sum of the currents in each branch. Because current is added in parallel paths, the source must deliver more current than flows through any single branch. For example, with two resistors in parallel across a 12-volt source, the current in each resistor is I = V/R. If one resistor is 4 ohms and the other is 8 ohms, the currents are 3 A and 1.5 A, respectively, giving a total from the source of 4.5 A. That total is greater than either branch current. In parallel, the voltage across each resistor is the same, so it's not true that the voltages across the resistors are different. The total resistance in parallel is not the largest resistor; it's actually less than the smallest resistor (for two resistors, Rt = (R1*R2)/(R1+R2)).

6. What does the ground symbol primarily provide in circuit diagrams?

A. A common reference point for voltages and a return path for current.

B. Indicates the location of the power source.

C. Shows that the circuit is isolated from earth.

D. Represents the load connection.

Ground in circuit diagrams serves as a common reference point for voltages and provides a return path for current. By defining a zero-volt reference, every component's voltage can be described relative to ground, which makes analyzing and comparing voltages straightforward. It also completes the current loop, giving current a path back to the source. While ground is often connected to earth for safety in real equipment, its primary role in diagrams is the reference node and return path—not pinpointing the power source, indicating isolation from earth, or representing the load connection.

7. When different rated capacitors are connected in series in a circuit, the total capacitance is

A. Equal to the sum of all the capacitances.

B. Greater than the capacitance of the highest rated capacitor.

C. Less than the capacitance of the lowest rated capacitor.

D. Equal to the average of the capacitances.

In series, the total capacitance is smaller than the smallest capacitor in the string. This happens because the same charge flows through each capacitor, so the voltages across them add up as V_total = V1 + V2 + ..., and each voltage is Q/Ci. The combined effect is captured by 1/Ceq = 1/C1 + 1/C2 + ..., which makes Ceq smaller than any individual capacitance (strictly smaller if there are two or more capacitors). For example, 4 µF and 6 µF in series give Ceq = (4×6)/(4+6) = 2.4 µF, which is less than both. Therefore the total capacitance in series is less than the lowest-rated capacitor in the group.

8. With power to the bus and the fuel selector switched to the right-hand tank, how many relays in the system are operating?

A. Two.

B. Four.

C. Three.

D. Five.

When power is on the bus, the fuel system's control path is ready to operate. Selecting the right-hand tank completes the signal path to that tank's fuel pump. This energizes a chain of relays: the main fuel-pump supply relay (providing power from the bus to the fuel system), the right-tank pump relay (which actually switches power to the right-hand pump), and the selector/interlock path that enables the right-tank circuit. All three coils energize, so three relays are operating. If the selector changes or is removed, the interlock would stop energizing the others, reducing how many relays are active.

9. Three 6 Ω resistors in parallel connected to a 28 V source. What is the total current drawn from the source?

A. 7 A

B. 28 A

C. 14 A

D. 56 A

In a parallel circuit, the voltage across each resistor is the same as the source, and the total current is the sum of the currents through each branch. Each 6 Ω resistor sees 28 V, so the current in one resistor is 28/6 ≈ 4.667 A. With three identical resistors in parallel, add the branch currents: 3 × 28/6 = 84/6 = 14 A. Another way to see it is the equivalent resistance of three identical resistors in parallel is R/3 = 6/3 = 2 Ω, so the total current from the source is 28/2 = 14 A. The other currents would require an overall resistance not attainable by three 6 Ω resistors in parallel. Therefore, the total current drawn from the source is 14 A.

10. If a thermal protector switch activates to prevent overheating damage to an electric motor, once the motor has cooled;

A. The circuit can be reset from the flight deck.

B. The motor will reset by itself.

C. The circuit protector is replaced by a maintenance crew.

D. The circuit must be replaced.

When a motor overheats, a thermal protector opens the circuit to stop current flow and protect the winding. For a self-resetting protector, once the motor cools down below the reset temperature, the device automatically closes the circuit again and normal operation can resume if power is available. That automatic reset is why the best answer is that the motor will reset by itself after cooling. Resetting from another control interface isn't required, and replacing the protector or the circuit isn't necessary unless the protector has failed or there's another underlying problem. If trips happen repeatedly, you'd want to check for overloading, inadequate cooling, or wiring faults to prevent re-tripping.

Next Steps

Congratulations on reaching the final section of this guide. You've taken a meaningful step toward passing your certification exam and advancing your career.

As you continue preparing, remember that consistent practice, review, and self-reflection are key to success. Make time to revisit difficult topics, simulate exam conditions, and track your progress along the way.

If you need help, have suggestions, or want to share feedback, we'd love to hear from you. Reach out to our team at hello@examzify.com.

Or visit your dedicated course page for more study tools and resources:

https://amtgenfundofelectricity.examzify.com

We wish you the very best on your exam journey. You've got this!