

# AT&T Technical Knowledge (TKT) II Practice Test (Sample)

## Study Guide



**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

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- 1. The resistance in a series circuit is equal to what?**
  - A. The sum of individual resistances**
  - B. The average of the resistances**
  - C. The maximum resistance only**
  - D. The minimum resistance only**
  
- 2. In an AC current, if the power factor = 0.5, what is the relationship between true power and apparent power?**
  - A. True power is twice the apparent power**
  - B. True power is half the apparent power**
  - C. True power is equal to apparent power**
  - D. True power is the sum of apparent power**
  
- 3. In a closed circuit, what is the primary function of the power source?**
  - A. To reduce resistance**
  - B. To provide a flow of current**
  - C. To increase capacitance**
  - D. To store energy**
  
- 4. Identify the layers of the OSI model.**
  - A. Physical, Data Link, Network, Transport, Session, Presentation, Application**
  - B. Application, Session, Transport, Network, Internet, Data Link, Physical**
  - C. Physical, Data, Link, Transport, Routing, Application, Session**
  - D. Transport, Network, Link, Physical, Application, Security, Interface**
  
- 5. What does the impedance of an AC circuit represent?**
  - A. The total voltage in the circuit**
  - B. The total power consumed**
  - C. The total opposition to current flow**
  - D. The total current flowing through**

- 6. In a DC circuit, what happens to the resistance when the temperature increases?**
- A. Resistance increases**
  - B. Resistance decreases**
  - C. Resistance remains constant**
  - D. Resistance can fluctuate**
- 7. Capacitive reactance in an AC circuit generally behaves how with respect to frequency?**
- A. Directly proportional**
  - B. Inversely proportional**
  - C. Unaffected**
  - D. Constant**
- 8. What device is used to increase the measured loss in a circuit?**
- A. Amplifier**
  - B. Pad**
  - C. Router**
  - D. Switch**
- 9. A device used to compensate for variations in speed between two different devices is a \_\_\_\_\_.**
- A. Converter**
  - B. Buffer**
  - C. Adapter**
  - D. Controller**
- 10. A nibble is \_\_\_\_\_.**
- A. 4 bits or half a byte**
  - B. 8 bits or a byte**
  - C. 16 bits or two bytes**
  - D. 32 bits or four bytes**

## Answers

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

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## **Explanations**

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1. The resistance in a series circuit is equal to what?

**A. The sum of individual resistances**

B. The average of the resistances

C. The maximum resistance only

D. The minimum resistance only

In a series circuit, the total resistance is determined by summing the individual resistances of all components connected in the circuit. This is a fundamental principle of electrical circuits, where resistors in series do not share voltage; instead, the total voltage across the series combination is the sum of the voltages across each resistor. Consequently, the total resistance increases with each additional resistor added to the circuit, which directly affects the overall current flowing through the circuit according to Ohm's Law. This principle is crucial for analyzing and designing electrical circuits since it dictates how resistors will behave collectively rather than individually. The resistance in a series circuit provides a comprehensive understanding of how the circuit will perform, helping technicians and engineers make informed decisions regarding circuit design and troubleshooting.

2. In an AC current, if the power factor = 0.5, what is the relationship between true power and apparent power?

A. True power is twice the apparent power

**B. True power is half the apparent power**

C. True power is equal to apparent power

D. True power is the sum of apparent power

In an AC circuit, the power factor is a measure of how effectively the current is being converted into useful work output. It is defined as the ratio of true power to apparent power, and it can be mathematically expressed as:  $\text{Power Factor (PF)} = \frac{\text{True Power (P)}}{\text{Apparent Power (S)}}$  When the power factor is 0.5, this indicates that the true power is half of the apparent power. This can be rearranged to show that:  $\text{True Power (P)} = \text{Power Factor (PF)} \times \text{Apparent Power (S)}$  Substituting the value of the power factor:  $\text{True Power (P)} = 0.5 \times \text{Apparent Power (S)}$  From this relationship, it becomes clear that when the power factor is 0.5, true power is indeed half of the apparent power. Thus, the correct understanding is that true power, which represents the actual work done by the electrical system, is only a fraction of the total apparent power due to the presence of reactance in the circuit.

**3. In a closed circuit, what is the primary function of the power source?**

- A. To reduce resistance
- B. To provide a flow of current**
- C. To increase capacitance
- D. To store energy

The primary function of the power source in a closed circuit is to provide a flow of current. In an electrical circuit, the power source creates a potential difference (voltage) that drives the movement of electrical charges through the circuit. This flow of current is essential for powering devices and enabling them to function. When a power source, such as a battery or power supply, is connected in a circuit, it establishes an electric field that propels electrons from the negative terminal to the positive terminal, effectively creating a current flow. This current is what allows electrical devices to operate, whether it is turning on a light bulb, powering a motor, or supplying energy to any other electronic components. In contrast, the other options refer to characteristics or functions that are not primarily associated with the power source itself. Reducing resistance, increasing capacitance, or storing energy are aspects of circuit design or component functionality rather than the direct role of the power source in providing the necessary energy flow for current to circulate within the circuit.

**4. Identify the layers of the OSI model.**

- A. Physical, Data Link, Network, Transport, Session, Presentation, Application**
- B. Application, Session, Transport, Network, Internet, Data Link, Physical
- C. Physical, Data, Link, Transport, Routing, Application, Session
- D. Transport, Network, Link, Physical, Application, Security, Interface

The correct identification of the layers of the OSI model is based on the universally accepted stack of seven layers that describe the functions of a networking system. These layers include: 1. **Physical**: This layer is concerned with the transmission and reception of raw bit streams over a physical medium. 2. **Data Link**: This layer is responsible for node-to-node data transfer and handles error correction from the physical layer. 3. **Network**: This layer facilitates the transmission of data packets from source to destination through different networks, managing routing and addressing. 4. **Transport**: This layer ensures reliable data transfer by establishing a connection and controlling the flow of data, error recovery, and segmentation. 5. **Session**: This layer manages sessions between applications, establishing, maintaining, and terminating connections as needed. 6. **Presentation**: This layer translates data between the formats the network requires and the formats the applications can use. 7. **Application**: This layer interacts directly with end-user applications, such as web browsers and email clients, providing network services. The answer provided aligns perfectly with the established OSI model structure, ensuring a comprehensive understanding of how these layers interact to facilitate network communication. Other options do not accurately represent the correct sequence.

**5. What does the impedance of an AC circuit represent?**

- A. The total voltage in the circuit**
- B. The total power consumed**
- C. The total opposition to current flow**
- D. The total current flowing through**

The impedance of an AC circuit represents the total opposition to current flow. It is a complex quantity that combines both resistance (the opposition to current flow that does not change with the frequency) and reactance (the opposition to current flow that varies with frequency due to inductors and capacitors). Impedance is measured in ohms and is essential for analyzing AC circuits because it affects how much current will flow for a given voltage according to Ohm's Law, which in AC circuits is expressed as  $V = IZ$ , where  $V$  is voltage,  $I$  is the current, and  $Z$  is the impedance. Understanding impedance is crucial for designing and troubleshooting AC circuits, as it can impact the performance and efficiency of electrical systems. The other choices primarily focus on various aspects of the circuit (voltage, power, and current) but do not define the specific concept of impedance, which is uniquely concerned with the total opposition that the circuit presents to current flow.

**6. In a DC circuit, what happens to the resistance when the temperature increases?**

- A. Resistance increases**
- B. Resistance decreases**
- C. Resistance remains constant**
- D. Resistance can fluctuate**

In a DC circuit, as the temperature increases, the resistance of most conductors, such as metals, typically increases. This phenomenon occurs because, as the temperature rises, the atoms in the conductor vibrate more intensely. This increased atomic motion disrupts the flow of free electrons, which are responsible for conducting electricity. This disruption results in more collisions between electrons and atoms, leading to an increase in resistance. Materials like semiconductors and insulators can exhibit different behaviors, but for common conductive materials, the trend is that resistance increases with temperature. This principle is essential in understanding how electronic components behave under different thermal conditions, which is crucial for circuit design and analysis. Therefore, the option indicating that resistance increases with temperature in a DC circuit is accurate.

**7. Capacitive reactance in an AC circuit generally behaves how with respect to frequency?**

- A. Directly proportional**
- B. Inversely proportional**
- C. Unaffected**
- D. Constant**

Capacitive reactance in an alternating current (AC) circuit is indeed inversely proportional to frequency. This relationship can be understood through the formula for capacitive reactance, which is given by:  $X_C = \frac{1}{2\pi f C}$ . Here,  $X_C$  represents the capacitive reactance,  $f$  is the frequency of the AC signal, and  $C$  is the capacitance in farads. According to this formula, as the frequency ( $f$ ) increases, the value of  $X_C$  decreases. This means that higher frequencies result in lower capacitive reactance, allowing more alternating current to pass through the capacitor. Conversely, at lower frequencies, the capacitive reactance is higher, restricting the flow of current. Therefore, the nature of capacitive reactance with respect to frequency is characterized by this inverse relationship, confirming that it is inversely proportional. This principle is foundational in understanding how capacitors function in AC circuits, particularly in applications such as filtering and tuning.

**8. What device is used to increase the measured loss in a circuit?**

- A. Amplifier**
- B. Pad**
- C. Router**
- D. Switch**

The device used to increase the measured loss in a circuit is a pad. A pad typically consists of resistors that introduce attenuation (loss) into a signal path deliberately. This is often necessary in communication systems to match signal levels, prevent distortion, or manage power levels effectively as signals pass through different components. By using a pad, engineers can adjust the signal strength to maintain optimal performance and avoid issues such as overloading or interference in network devices. In contrast, an amplifier is designed to increase the signal strength, which does not align with the requirement of creating an increased loss. A router primarily directs data packets between networks and does not serve the function of modifying signal loss. A switch connects multiple devices within the same network but also does not alter the loss characteristics of the circuit. Therefore, the pad is specifically utilized for adjusting loss levels, making it the correct choice.

9. A device used to compensate for variations in speed between two different devices is a \_\_\_\_\_.

A. Converter

**B. Buffer**

C. Adapter

D. Controller

The correct answer is Buffer. A buffer is a temporary storage area that helps manage data transmission between two devices that may operate at different speeds. When one device sends data faster than the other can process it, the buffer temporarily holds the incoming data until the receiving device is ready to handle it. This prevents data loss and ensures smooth data flow, making it an essential component in systems where speed discrepancies exist. In contrast, a converter typically changes data formats and protocols between different technologies rather than managing speed variations directly. An adapter connects different systems or devices but does not inherently manage speed differences. A controller is used to manage or direct device operations but is not primarily focused on compensating for speed discrepancies between devices. Thus, the buffer is specifically designed for this purpose, allowing for efficient communication between devices with differing processing speeds.

10. A nibble is \_\_\_\_\_.

**A. 4 bits or half a byte**

B. 8 bits or a byte

C. 16 bits or two bytes

D. 32 bits or four bytes

A nibble is defined as 4 bits, which is half of a byte. In digital computing, a byte consists of 8 bits, so when you divide a byte in half, you get a nibble, making this term particularly useful when representing binary-coded numbers or characters that fall within the range of 0 to 15, as each nibble can represent one hexadecimal digit. This understanding is foundational in areas like computer architecture and programming, where data representation is essential. Other options listed describe larger groupings of bits that do not align with the definition of a nibble.

## 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](mailto:hello@examzify.com).**

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

**<https://atttechknowledge2.examzify.com>**

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

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