

ISTQB CERTIFIED TESTER AI TESTING PRACTICE TEST (SAMPLE)

STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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THE FULL VERSION STUDY GUIDE

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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. Why are flexibility and adaptability important for AI-based systems?

- A. They enable operation only in static environments.
- B. They prevent learning from new data.
- C. They guarantee perfect performance.
- D. They enable operation in unforeseen or changing environments and allow self-modification within resource constraints.

2. How can AI optimize regression test suites?

- A. By executing the entire regression suite every time with no prioritization.
- B. By using only recent code changes, ignoring historical results.
- C. By ignoring defect data in favor of random selection.
- D. By analyzing historical test results, defect data, and recent code changes to intelligently select, prioritize, and augment test cases.

3. Which activities follow training in the ML workflow?

- A. Evaluating and tuning the model
- B. Deploying and using the model
- C. Data acquisition
- D. Feature engineering

4. Which statement best captures the differences between AI testing and traditional software testing?

- A. Traditional testing focuses on functional correctness, reliability, and boundary conditions.
- B. AI testing emphasizes data quality, model behavior, nondeterminism, drift, fairness, explainability, and continuous monitoring.
- C. AI testing ignores calibration.
- D. There is no difference between AI and traditional testing.

5. Which testing technique is often required to define safe operating boundaries for autonomous AI systems?

- A. Boundary value analysis of the operating environment.
- B. Functional equivalence partitioning with no boundary checks.
- C. Load testing focusing solely on throughput.
- D. Random testing with no consideration of environment.

6. How does Explainable AI (XAI) relate to testing AI systems and what should testers assess?

- A. Testers evaluate interpretability, explanation fidelity, faithfulness, and user understandability of model decisions and ensure explanations are consistent.
- B. XAI is about data privacy only.
- C. XAI ensures models run faster.
- D. XAI is not relevant to testing.

7. How are AI-based systems tested at different test levels?

- A. They are tested only at the final acceptance stage.
- B. They are tested across various levels: input data testing ensures data quality; ML model testing validates model performance and optimization; component testing verifies non-AI components; component integration testing confirms interaction between AI and non-AI components; system testing validates the complete system's functionality and non-functional aspects, including adversarial testing and explainability; and acceptance testing determines customer satisfaction and service suitability.
- C. Testing focuses solely on the AI model in isolation.
- D. There is no need for integration testing in AI systems.

8. What does a reliability diagram demonstrate in calibration assessment?

- A. The relationship between predicted probabilities and observed frequencies to assess calibration.
- B. The training loss curve over epochs.
- C. The model's confusion matrix.
- D. The architecture of the model.

9. What best describes the role of governance and ethics in AI testing?

- A. Involves only data privacy but not model behavior.
- B. Is only about compliance with laws, not testing.
- C. Focuses only on performance metrics like accuracy.
- D. Ensures transparent, accountable, and fair model behavior; tests for alignment with ethical guidelines and regulatory requirements.

10. Why is data quality assessment critical in AI testing, and which key dimensions should be evaluated?

- A. AI models rely on hardware; evaluate CPU usage and memory leakage.
- B. AI models rely on data; evaluate accuracy, completeness, consistency, representativeness, freshness, labeling quality, bias, and privacy.
- C. AI models rely on tests; evaluate pass rates, test coverage, and defect density.
- D. AI models rely on code; evaluate syntax, style, and comments.

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Answers

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

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Explanations

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1. Why are flexibility and adaptability important for AI-based systems?

- A. They enable operation only in static environments.
- B. They prevent learning from new data.
- C. They guarantee perfect performance.
- D. They enable operation in unforeseen or changing environments and allow self-modification within resource constraints.**

Flexibility and adaptability mean an AI system can handle changes and surprises in how it operates, what data it sees, and what users expect. Real-world situations rarely stay the same, so systems need to cope with shifting data distributions, new input types, and evolving goals. By staying adaptable, an AI can update its models or behavior online, adjust its strategies under limited resources, and even modify its own configuration within those resource bounds. This combination—performing well under unseen conditions while making safe, resource-conscious tweaks—is what keeps the system useful over time, not just in a carefully prepared scenario. Choosing an approach that assumes a static environment, or that blocks learning from new data, misses the point of adaptability and would fail when conditions change. Likewise, expecting perfect performance ignores that no system can guarantee flawless results; adaptability aims for robustness and resilience rather than perfection.

2. How can AI optimize regression test suites?

- A. By executing the entire regression suite every time with no prioritization.
- B. By using only recent code changes, ignoring historical results.
- C. By ignoring defect data in favor of random selection.
- D. By analyzing historical test results, defect data, and recent code changes to intelligently select, prioritize, and augment test cases.**

AI can optimize regression test suites by making testing decisions based on data, focusing effort where it's most likely to find issues. By analyzing historical test results, defect data, and recent code changes, it can intelligently select which tests to run, order them to maximize early defect detection, and augment the suite with additional tests to cover gaps. Historical results reveal which tests have caught defects in the past and which are prone to flaking, defect data points to the areas most likely to reveal faults, and recent code changes indicate where risk has shifted. Combining these signals enables risk-based selection and prioritization, so the most relevant and high-impact tests run first and the suite remains efficient even under time constraints. It can also identify coverage gaps and suggest or implement new or updated tests to address those gaps, maintaining strong regression coverage as the codebase evolves. Running the entire regression suite every time with no prioritization wastes time and resources and is impractical at scale. Ignoring historical results and focusing only on recent changes misses patterns from past runs and can overlook persistent risk areas. Selecting tests randomly while ignoring defect data is unreliable and prone to missing critical defects.

3. Which activities follow training in the ML workflow?

- A. Evaluating and tuning the model
- B. Deploying and using the model
- C. Data acquisition
- D. Feature engineering

After training a model, the next essential step is to evaluate its performance and tune its settings. This means testing the trained model on validation data, checking metrics to see how well it generalizes, and adjusting hyperparameters or trying different configurations to improve results. This evaluation-and-tuning loop is what you perform immediately after training to ensure the model meets the desired criteria before you consider deploying it. Deployment and routine use come after you're satisfied with the model's performance. Data acquisition and feature engineering, on the other hand, occur before training because they prepare and shape the data the model learns from.

4. Which statement best captures the differences between AI testing and traditional software testing?

- A. Traditional testing focuses on functional correctness, reliability, and boundary conditions.
- B. AI testing emphasizes data quality, model behavior, nondeterminism, drift, fairness, explainability, and continuous monitoring.
- C. AI testing ignores calibration.
- D. There is no difference between AI and traditional testing.

Testing AI systems requires focusing on how data and models interact in real-world use. The best statement captures that AI testing goes beyond checking whether a function does the right thing for a given input and instead emphasizes data quality, how the model behaves, the nondeterministic nature of predictions, potential drift in data over time, fairness and bias considerations, explainability of decisions, and the need for continuous monitoring in production. Data quality matters because the inputs and training data shape outputs; if data are flawed or biased, the model's results will be unreliable. Model behavior is about understanding how the model responds to a wide range of inputs, including edge cases, and recognizing that many AI models produce probabilistic outputs rather than deterministic results. Nondeterminism means repeated evaluations can yield different outcomes, so tests should assess consistency and robustness, not just a single run. Drift highlights that data distributions change, so performance can degrade unless we watch for it and retrain as needed. Fairness touches on ensuring outputs don't unfairly discriminate across groups, while explainability asks for insights into how a decision was reached. Continuous monitoring keeps an eye on performance after deployment, detecting when models go off spec due to changing data or environments. Traditional testing indeed covers functional correctness, reliability, and boundary conditions, but it does not inherently address these data-driven and governance aspects that are central to AI systems. Calibration is a relevant concern in AI testing as well, since the reliability of probability estimates matters for trust and decision-making.

5. Which testing technique is often required to define safe operating boundaries for autonomous AI systems?

- A. Boundary value analysis of the operating environment.**
- B. Functional equivalence partitioning with no boundary checks.
- C. Load testing focusing solely on throughput.
- D. Random testing with no consideration of environment.

Boundary value analysis focuses on the edges of input and environmental conditions where system behavior often changes. For autonomous AI systems, safe operation hinges on sensor readings, environmental factors, and actuation limits, so testing at and around those boundaries helps reveal failures that occur at thresholds—such as when a sensor just reaches its detection limit, a decision boundary is crossed, or a safety margin is tested. By evaluating values just inside, at, and just outside these boundaries, you verify that the system behaves safely across transitions and doesn't produce unsafe decisions when inputs are near the limits. The other approaches miss these crucial edge cases: partitioning without boundary checks ignores critical thresholds, throughput-focused load testing doesn't probe safety boundaries, and random testing without environmental consideration is unlikely to hit the important edge conditions.

6. How does Explainable AI (XAI) relate to testing AI systems and what should testers assess?

- A. Testers evaluate interpretability, explanation fidelity, faithfulness, and user understandability of model decisions and ensure explanations are consistent.**
- B. XAI is about data privacy only.
- C. XAI ensures models run faster.
- D. XAI is not relevant to testing.

Explainable AI in testing focuses on making model decisions understandable and justifiable for humans. Testers assess interpretability, the fidelity of the reasons given for a decision, faithfulness to what the model actually uses to reach that decision, and how easy the rationale is for users to grasp. They also check that the reasons are consistent across similar inputs and across different scenarios. This means verifying that the features highlighted or the attributions align with how the model truly operates, that the explanations don't mislead or oversimplify, and that stakeholders—ranging from domain experts to end users—can trust and act on what the model is doing. For instance, in a loan-approval system, you'd expect the stated reasons to line up with the model's use of income, debt, and credit history, and for those reasons to remain coherent when inputs change slightly. This approach is why the choice is best: it directly targets the essential aspects testers must evaluate in XAI—interpretability, accurate and faithful reasoning, understandability, and consistency. Other options miss these core aspects by focusing only on privacy, speed, or claiming XAI isn't relevant to testing.

7. How are AI-based systems tested at different test levels?

- A. They are tested only at the final acceptance stage.
- B. They are tested across various levels: input data testing ensures data quality; ML model testing validates model performance and optimization; component testing verifies non-AI components; component integration testing confirms interaction between AI and non-AI components; system testing validates the complete system's functionality and non-functional aspects, including adversarial testing and explainability; and acceptance testing determines customer satisfaction and service suitability.**
- C. Testing focuses solely on the AI model in isolation.
- D. There is no need for integration testing in AI systems.

Testing AI-based systems requires a multi-level approach that covers everything from the data to the full system and how users experience it. Start with input data testing to ensure the data feeding the AI is accurate, representative, clean, and free of bias that could skew results. Then move to ML model testing to verify the model's performance, generalization to new data, convergence during training, robustness to variations, and fairness and explainability where relevant. Next, component testing focuses on the non-AI parts of the system to ensure they work correctly in isolation. After that, component integration testing checks that AI components and non-AI components interact properly, exchange data correctly, and meet interface contracts. System testing looks at the complete, end-to-end system to validate overall functionality and non-functional aspects such as reliability, performance, security, resilience to adversarial inputs, and the ability to explain decisions. Finally, acceptance testing evaluates whether the delivered system meets customer needs, provides the intended service quality, and is usable in real-world scenarios. This layered approach reflects the reality that AI systems operate within broader software environments and must be trustworthy and usable at every level. The other options fall short because focusing only on the final acceptance stage misses early and ongoing checks on data quality, model behavior, interfaces, and overall system robustness. Testing the AI model in isolation ignores how it interacts with other components. And dismissing the need for integration testing overlooks critical failures that can arise at the boundaries between AI and non AI parts.

8. What does a reliability diagram demonstrate in calibration assessment?

- A. The relationship between predicted probabilities and observed frequencies to assess calibration.**
- B. The training loss curve over epochs.
- C. The model's confusion matrix.
- D. The architecture of the model.

A reliability diagram shows how well predicted probabilities align with observed frequencies, which is what calibration evaluates. In calibration, you want the predicted likelihood of an event to match the actual occurrence rate. The diagram plots predicted probability (often grouped into bins) on the x-axis and the observed frequency in each bin on the y-axis. If predictions are perfectly calibrated, the points fall on the diagonal line where predicted equals observed. Deviations reveal miscalibration: if the curve sits below the diagonal, the model is overconfident—the observed frequency is lower than the predicted probability; if it sits above, the model is underconfident—the observed frequency is higher than the predicted probability. This visualization makes it easy to see systematic over- or under-confidence across the probability range and is often used alongside numeric measures like calibration error or the Brier score. The other options don't depict calibration: a training loss curve tracks optimization progress, a confusion matrix summarizes discriminative performance, and model architecture shows the design of the model.

9. What best describes the role of governance and ethics in AI testing?

- A. Involves only data privacy but not model behavior.
- B. Is only about compliance with laws, not testing.
- C. Focuses only on performance metrics like accuracy.
- D. Ensures transparent, accountable, and fair model behavior; tests for alignment with ethical guidelines and regulatory requirements.**

Governance and ethics in AI testing means ensuring the system's behavior is transparent, accountable, and fair, and that testing checks alignment with ethical guidelines and regulatory requirements. This goes beyond just measuring accuracy or privacy alone; it includes evaluating for bias, ensuring explainability and auditability, protecting data privacy and consent, and verifying that organizational policies and laws are followed throughout development and deployment. In practice, you test not only what the model does well, but whether its decisions can be traced, justified, and kept in line with governance frameworks, with appropriate monitoring and controls to address ethical and legal concerns.

10. Why is data quality assessment critical in AI testing, and which key dimensions should be evaluated?

- A. AI models rely on hardware; evaluate CPU usage and memory leakage.
- B. AI models rely on data; evaluate accuracy, completeness, consistency, representativeness, freshness, labeling quality, bias, and privacy.**
- C. AI models rely on tests; evaluate pass rates, test coverage, and defect density.
- D. AI models rely on code; evaluate syntax, style, and comments.

Data quality assessment is essential in AI testing because AI models learn from data, and poor data quality leads to misleading evaluations, biased or unsafe predictions, and privacy risks in real use. The main dimensions to evaluate include accuracy (how correct the data values are), completeness (whether all needed features and records are present), consistency (no contradictory values across sources or over time), representativeness (data reflects the real-world population the model will encounter), freshness (data is up to date and still relevant), labeling quality (supervised labels are correct and reliable), bias (data does not systematically favor or disadvantage groups), and privacy (sensitive information is protected and compliant with regulations). For example, inaccurate labels can train a model to make wrong predictions, missing features can leave gaps the model can't fill, and biased data can produce unfair outcomes. If the data quality dimensions are neglected, even a well-constructed model may fail to generalize, violate fairness or privacy requirements, or give false confidence in its performance. The other choices focus on aspects unrelated to data quality—hardware resource usage, general software testing metrics, or code quality—yet data quality lies at the heart of trustworthy AI testing.

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://istqbcerttesteraiteesting.examzify.com>

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

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