Sample Exam – Answers

Sample Exam set C
Version 1.0

ISTQB® Certified Tester Syllabus Foundation Level

Compatible with Syllabus version 1.03

International Software Testing Qualifications Board

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The ISTQB® Examination Working Group is responsible for this document.

This document is maintained by a core team from ISTQB® consisting of the Syllabus Working Group and Exam Working Group.

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Revision History

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Version	Date	Remarks
1.0	October 16, 2023	First version

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Introduction

Purpose of this document

The example questions and answers and associated justifications in this sample exam have been created by a team of subject matter experts and experienced question writers with the aim of:

- Assisting ISTQB® Member Boards and Exam Boards in their question writing activities
- Providing training providers and exam candidates with examples of exam questions

These questions cannot be used as-is in any official examination.

Note, that real exams may include a wide variety of questions, and this sample exam ***is not*** intended to include examples of all possible question types, styles or lengths, also this sample exam may both be more difficult or less difficult than any official exam.

Instructions

In this document you may find:

- Answer Key table, including for each correct answer:
  - K-level, Learning Objective, and Point value
- Answer sets, including for all questions:
  - Correct answer
  - Justification for each response (answer) option
  - K-level, Learning Objective, and Point value
- Additional answer sets, including for all questions [does not apply to all sample exams]:
  - Correct answer
  - Justification for each response (answer) option
  - K-level, Learning Objective, and Point value

- *Questions are contained in a separate document*

Answer Key

Question Number (#)	Correct Answer	LO	K-Level	Points
1	b	FL-1.1.1	K1	1
2	c	FL-1.1.2	K2	1
3	b	FL-1.3.1	K2	1
4	b, e	FL-1.4.1	K2	1
5	a	FL-1.4.3	K2	1
6	c	FL-1.4.5	K2	1
7	b	FL-1.5.2	K1	1
8	a	FL-1.5.3	K2	1
9	d	FL-2.1.2	K1	1
10	d	FL-2.1.3	K1	1
11	b	FL-2.1.5	K2	1
12	c	FL-2.1.6	K2	1
13	d	FL-2.2.1	K2	1
14	b	FL-2.2.3	K2	1
15	d	FL-3.1.3	K2	1
16	a	FL-3.2.1	K1	1
17	b	FL-3.2.4	K2	1
18	b	FL-3.2.5	K1	1
19	c	FL-4.1.1	K2	1
20	c	FL-4.2.1	K3	1

Question Number (#)	Correct Answer	LO	K-Level	Points
21	d	FL-4.2.2	K3	1
22	d	FL-4.2.3	K3	1
23	a	FL-4.2.4	K3	1
24	c	FL-4.3.2	K2	1
25	a	FL-4.3.3	K2	1
26	b	FL-4.4.1	K2	1
27	d	FL-4.4.3	K2	1
28	b	FL-4.5.2	K2	1
29	d	FL-4.5.3	K3	1
30	a	FL-5.1.1	K2	1
31	c	FL-5.1.4	K3	1
32	a	FL-5.1.5	K3	1
33	b	FL-5.1.6	K1	1
34	d	FL-5.1.7	K2	1
35	c	FL-5.2.3	K2	1
36	b	FL-5.3.2	K2	1
37	d	FL-5.4.1	K2	1
38	b	FL-5.5.1	K3	1
39	d	FL-6.1.1	K2	1
40	d	FL-6.2.1	K1	1

Answers

Question Number (#)	Correct Answer	Explanation / Rationale	Learning Objective (LO)	K-Level	Number of Points
1	b	a) Is not correct. Validating that documented requirements are met is incorrect as validation is concerned with meeting user requirements and expectations, while verification is concerned with meeting specified requirements, so this would be correct if we replaced 'validating' with 'verifying' b) Is correct. Causing failures and identifying defects is probably the most common objective of dynamic testing c) Is not correct. Initiating errors and identifying root causes is incorrect because testers do not initiate errors, they try to cause failures. Errors are typically made by developers (and cannot really be initiated) and result in defects, which testers attempt to identify either directly through static testing or indirectly through failures with dynamic testing. Identifying root causes is useful but is part of debugging, which is a separate activity to testing d) Is not correct. Verifying the test object meets user expectations is incorrect as verification is concerned with checking specified (documented) requirements are met, while validation is concerned with meeting user requirements and expectations, so this would be correct if we replaced 'verifying' with 'validating'	FL-1.1.1	K1	1

Question Number (#)	Correct Answer	Explanation / Rationale	Learning Objective (LO)	K-Level	Number of Points
2	c	a) Is not correct. Dynamic testing does cause failures (from which defects can then be located and fixed). However, debugging is concerned with locating defects and fixing these defects. Therefore, debugging does not fix failures b) Is not correct. Both testing and debugging contribute to improving the quality of the test object, so should really both be considered positively. Debugging is generally considered to be a positive activity as it is fixing something. Dynamic testing does involve intentionally causing the test object to fail, which is why some people consider it a negative activity, but that is a very narrow view (and not one typically held by testers). Both positive and negative test cases are possible. Positive test cases check that the test object correctly performs what it is supposed to do, while negative testing checks that the test object does not do what it is not supposed to do c) Is correct. Testing determines that defects exist either directly through observation of the defect in reviews (or by a tool in static analysis), or indirectly by causing a failure in dynamic testing. Debugging is a separate activity from testing (normally performed by developers) and is concerned with locating defects (only for dynamic testing) and fixing the defects d) Is not correct. The causes of defects are typically human errors. Testing finds defects either directly through static testing, or indirectly by causing failures in dynamic testing, and debugging fixes defects. So, testing does not find the cause of defects and debugging does not fix the causes of defects	FL-1.1.2	K2	1

Question Number (#)	Correct Answer	Explanation / Rationale	Learning Objective (LO)	K-Level	Number of Points
3	b	The 'absence-of-defects fallacy' is concerned with the idea that ensuring correctness in accordance with the requirements (i.e., verifying the absence of implementation defects) does not guarantee user satisfaction with the system. To address this it is also necessary to validate that the system meets users' needs and expectations, fulfills business objectives, and outperforms competing systems. a) Is not correct. The 'testing shows the presence, not the absence of defects' principle explains that while testing can detect the existence of defects in the test object, it is not possible to demonstrate that there are no defects and, therefore, guarantee its correctness. Therefore, explaining that it is not possible for testing to show the absence of defects would partially address this principle, not the 'absence-of-defects' fallacy b) Is correct. By supporting the end user to perform acceptance testing it should be possible to validate that the system meets users' needs and expectations c) Is not correct. It is not possible to ensure that no implementation defects remain in the delivered system as the 'testing shows the presence, not the absence of defects' principle explains that while testing can detect the existence of defects in the test object, it is not possible to demonstrate that there are no defects and, therefore, guarantee its correctness d) Is not correct. Modifying tests that cause no failures to ensure few defects remain is one way to address the 'tests wear out' principle. This principle is concerned with the idea that repeating identical tests on unaltered code is unlikely to uncover novel defects and therefore, modifying tests may be essential. This will not validate that the system meets users' needs and expectations	FL-1.3.1	K2	1

Question Number (#)	Correct Answer	Explanation / Rationale	Learning Objective (LO)	K-Level	Number of Points
4	b, e	Given the following description of test analysis: To identify the features that require testing, the test basis is analyzed and defined as test conditions, which are then prioritized along with related risks. The systematic identification of test conditions as coverage items often involves using test techniques both during test analysis and as part of the test design activity. From the above description, it can be seen that test techniques are often used in the test analysis and test design activities. Boundary value analysis and equivalence partitioning are test techniques. a) Is not correct. Test implementation is not likely to involve the use of test techniques as it is mostly concerned with assembling test cases into test procedures, while test techniques create test cases b) Is correct. Test design is likely to involve the use of test techniques to create test cases from test conditions and coverage items c) Is not correct. Test execution is not likely to involve the use of test techniques as it is mostly concerned with executing test procedures (and so test cases), while test techniques create test cases d) Is not correct. Test monitoring is not likely to involve the use of test techniques. Test monitoring is mostly concerned with ongoing checks to ensure the plan is being followed, while test techniques create test cases e) Is correct. Test analysis is likely to involve the use of test techniques to identify test conditions	FL-1.4.1	K2	1

Question Number (#)	Correct Answer	Explanation / Rationale	Learning Objective (LO)	K-Level	Number of Points
5	a	Considering each of the listed test activities and their output testware: A. Test analysis - prioritized test conditions (4) (e.g., acceptance criteria), and defect reports for defects identified in the test basis B. Test design - prioritized test cases, test charters, coverage items (1), test data requirements, and test environment requirements C. Test implementation - test procedures, automated test scripts, test suites, test data, test execution schedule (3), and test environment elements such as stubs, drivers, simulators, and service virtualizations D. Test completion - test completion report, documented lessons learned, action items for improvement, and change requests (2) (as product backlog items) Thus: a) Is correct. The correct match is: 1B, 2D, 3C, 4A b) Is not correct c) Is not correct d) Is not correct	FL-1.4.3	K2	1

Question Number (#)	Correct Answer	Explanation / Rationale	Learning Objective (LO)	K-Level	Number of Points
6	c	a) Is not correct. Although it is correct to say that in Agile software development, some of the test management tasks may be handled by the Agile team itself, the testing role is not primarily the responsibility of a single individual from outside the team. Instead the testing is more likely to be performed by various team members following the whole-team approach b) Is not correct. The test management role primarily involves activities related to test planning, test monitoring and control, and test completion. So, although this statement is partially correct, it is wrong to say that the testing role is primarily responsible for test monitoring and control c) Is correct. In Agile software development, some of the test management tasks may be handled by the Agile team itself. However, for test activities that span multiple teams within an organization, test managers outside of the development team may perform these tasks d) Is not correct. The test management role primarily involves activities related to test planning, test monitoring and control, and test completion, while the testing role is primarily responsible for the technical and engineering aspects of testing, such as test analysis, test design, test implementation, and test execution. Thus the test management role is not normally responsible for test analysis and test design, although it is correct to say that the testing role is primarily responsible for test implementation and execution	FL-1.4.5	K2	1

Question Number (#)	Correct Answer	Explanation / Rationale	Learning Objective (LO)	K-Level	Number of Points
7	b	a) Is not correct. In the whole-team approach, testers play a vital role by sharing their testing expertise with the team and guiding product development. They collaborate with other team members to achieve the desired quality levels and work with business representatives to create acceptance tests. Testers also partner with developers to determine the optimal test strategy and automation approaches b) Is correct. By leveraging the diverse skill sets of each team member most effectively, the whole-team approach fosters superior team dynamics, promotes robust communication and collaboration, and generates a synergistic effect that benefits the entire project c) Is not correct. The whole-team approach allows any team member with the requisite skills and knowledge to undertake any task, thus specialist team members are not an advantage of this approach d) Is not correct. There is no specific guidance on the optimum size of teams using the whole-team approach, and there is no suggestion that larger teams are better	FL-1.5.2	K1	1

8	a	a) Is correct. The primary benefit of independence in testing is that testers are more likely to identify different types of failures and defects compared to developers, due to their varied backgrounds, technical viewpoints, and potential biases, including cognitive bias. However, the main disadvantage of independence in testing is that testers may become isolated from the development team, leading to communication problems, a lack of collaboration, and potentially an adversarial relationship, with testers being blamed for delays and bottlenecks in the release process b) Is not correct. A developer's familiarity with the code does not mean that they rarely find defects in it, instead this familiarity means they can efficiently find many defects in their own code. And, rather than developers and testers having a shared background, developers having a different background to testers is normally cited as the reason that testers and developers find different kinds of defects c) Is not correct. Testing can be conducted at different levels of independence, ranging from no independence for the author to very high independence for testers from outside the organization. In most projects, multiple levels of independence are utilized, with developers performing component and component integration testing, the test team performing system and system integration testing, and business representatives performing acceptance testing. So, testers can be in the developer's team and do not need to come from outside the organization. Knowledge of the application domain will change from case-to-case and is not dependent on the level of independence d) Is not correct. Testing can be conducted at different levels of independence, ranging from no independence for the author to very high independence for testers from outside the organization, with testers from outside the developer's team generally more independent than testers from within the team. However, there is more reason to believe that testers from outside the team are likely to be more isolated from the developers and so are more likely to be blamed for delays in product release	FL-1.5.3	K2	1

Question Number (#)	Correct Answer	Explanation / Rationale	Learning Objective (LO)	K-Level	Number of Points
9	d	a) Is not correct. Quality control applies to all development activities, meaning that every software development activity has a corresponding test activity. However, here we are attempting to equate test levels with development levels, and, although we know what is meant by 'test levels', there is no common understanding of the term ' development level' b) Is not correct. Every software development activity has a corresponding test activity; however test objectives are quite different. For instance, there might be a test objective of ensuring that a test object adheres to a contractual requirement that a certain type of testing must be performed before delivery. In this case there is no reason for there to be a corresponding development objective c) Is not correct. Quality control applies to all development activities, meaning that every software development activity has a corresponding test activity. However, the same symmetry does not apply to testing and user activities. For instance, for some systems it is difficult to even identify the end users. Also, some test activities are focused on developers (e.g., testing for ease of maintainability), which has no user aspect to it d) Is correct. Quality control applies to all development activities, meaning that every software development activity has a corresponding test activity	FL-2.1.2	K1	1

Question Number (#)	Correct Answer	Explanation / Rationale	Learning Objective (LO)	K-Level	Number of Points
10	d	a) Is not correct. Component Test-Driven Development is not a correct example of a test-first approach to development b) Is not correct. Integration Test-Driven Development is not a correct example of a test-first approach to development c) Is not correct. System Test-Driven Development is not a correct example of a test-first approach to development d) Is correct. Acceptance Test-Driven Development (ATDD) is a well-known example of a test-first approach to development	FL-2.1.3	K1	1

Question Number (#)	Correct Answer	Explanation / Rationale	Learning Objective (LO)	K-Level	Number of Points
11	b	a) Is not correct. Practices involved in shift-left testing are aimed at implementing more testing activities in the early phases of the development life cycle, portraying the SDLC as moving from left to right. There is no such thing as the left-hand side of the test process b) Is correct. Shift-left emphasizes the importance of starting testing earlier in the software development lifecycle (SDLC). Implementing shift-left testing necessitates additional training, and increased effort and costs during the early stages of the SDLC, nevertheless, overall savings should be higher c) Is not correct. Although automated component tests and component integration tests for regression testing are generally valuable, the creation of these tests is normally the responsibility of the developers, and if a continuous integration/continuous delivery (CI/CD) approach is followed, then these tests will have been submitted with the code. In some situations the tester may automate tests for regression testing, and sometimes even for component tests and component integration tests, however this is not part of a 'shift-left' approach which moves testing earlier in the SDLC d) Is not correct. Training testers to perform tasks early in the SDLC would support a shift-left approach by emphasizing the importance of starting testing earlier in the SDLC. However, automating more test activities to be performed later in the SDLC is not part of a 'shift-left' approach	FL-2.1.5	K2	1

Question Number (#)	Correct Answer	Explanation / Rationale	Learning Objective (LO)	K-Level	Number of Points
12	c	a) Is not correct. One of the purposes of retrospectives is to identify potential process improvements, which, if put into practice, should result in the quality of future outputs of the development process (test objects) being higher. So, this is likely to occur as a result of a retrospective b) Is not correct. A benefit of retrospectives for testing includes increased test efficiency through process improvements. So, this is likely to occur as a result of a retrospective c) Is correct. Participants at retrospectives typically include testers, developers, architects, product owners, and business analysts, but end users are rarely invited or attend these meetings – and they are also unlikely to receive any reports from these meetings. So, it is very unlikely that they will learn and understand more about the development and test processes through retrospectives d) Is not correct. A benefit of retrospectives for testing includes improved quality of testware (including automated test scripts) through joint reviews with developers. So, this is likely to occur as a result of a retrospective	FL-2.1.6	K2	1

Question Number (#)	Correct Answer	Explanation / Rationale	Learning Objective (LO)	K-Level	Number of Points
13	d	a) Is not correct. Component testing (also called unit testing) involves testing individual components in isolation and is mostly verification against a specification, rather than validation against user needs. However, this testing is not normally performed by testers, as developers usually carry out this testing in their development environment b) Is not correct. Component integration testing involves testing the interfaces and interactions between components and is mostly verification against a specification, rather than validation against user needs. However, this testing is not normally performed by testers, as developers usually carry out this testing c) Is not correct. System integration testing examines the interfaces with other systems and external services and is mostly verification against a specification, rather than validation against user needs. This type of testing is also most often performed by testers d) Is correct. Acceptance testing focuses on validating that the system meets the user's business needs and is ready for deployment. Ideally, this testing is carried out by the end users	FL-2.2.1	K2	1

Question Number (#)	Correct Answer	Explanation / Rationale	Learning Objective (LO)	K-Level	Number of Points
14	b	a) Is not correct. Confirmation testing to check that the updates have resulted in a correct implementation is necessary, however, it would then be sensible to perform regression testing to ensure that no defects have been introduced or uncovered in unchanged areas of the system b) Is correct. Confirmation testing will check that the updates have resulted in a correct implementation, and then regression testing will be used to ensure that no defects have been introduced or uncovered in unchanged areas of the system c) Is not correct. Regression testing should be used to ensure that no defects have been introduced or uncovered in unchanged areas of the system when the update was made, however it is also necessary to perform confirmation testing that will check that the updates have resulted in a correct implementation d) Is not correct. Confirmation testing will check that the updates have resulted in a correct implementation, and regression testing will be used to ensure that no defects have been introduced or uncovered in unchanged areas of the system. However, when performed (i.e., when an update needs to be tested), confirmation testing precedes regression testing	FL-2.2.3	K2	1

15	d	Considering each of the listed example defects: i. Two different parts of the design specification disagree due to the complexity of the design – this is an example of a specification defect, which includes inconsistencies, ambiguities, contradictions, omissions, inaccuracies, and duplications, which can most easily be found by static testing ii. A response time is too long and so makes users lose patience – this is an example of a response time defect, which can only be detected in practice by executing the program and measuring the response time, which can most easily be found by dynamic testing iii. A path in the code cannot be reached during execution - this is an example of a coding defect, which includes variables with undefined values, undeclared variables, duplicated or unreachable code, and excessive code complexity, which can most easily be found by static testing iv. A variable is declared but never subsequently used in the program - this is an example of a coding defect, which includes variables with undefined values, undeclared variables, duplicated or unreachable code, and excessive code complexity, which can most easily be found by static testing v. The amount of memory needed by the program to generate a report is too high – this is an example of a performance defect, which can only be detected in practice by executing the program and measuring the memory used, which can most easily be found by dynamic testing Thus: a) Is not correct b) Is not correct c) Is not correct d) Is correct. The correct match for static testing is i, iii, and iv	FL-3.1.3	K2	1

Question Number (#)	Correct Answer	Explanation / Rationale	Learning Objective (LO)	K-Level	Number of Points
16	a	a) Is correct. Obtaining feedback from stakeholders early and often in the software development process can be highly beneficial. It facilitates early communication of potential quality issues, can prevent misunderstandings about requirements, and ensures that any changes in stakeholder requirements are understood and implemented sooner b) Is not correct. The feedback is from stakeholders, and them providing feedback is unlikely to improve their understanding of their own user requirements c) Is not correct. Obtaining feedback from stakeholders early and often in the software development process can be highly beneficial. It facilitates early communication of potential quality issues, can prevent misunderstandings about requirements, and ensures that any changes in stakeholder requirements are understood and implemented sooner. However, because changes in requirements can be understood and implemented sooner, it does not mean that unlimited changes to requirements are encouraged d) Is not correct. The feedback is from stakeholders and does not cover communication to them. Communications to end users could include them being told about which requirements will not be implemented prior to release, but ideally this should not happen at all	FL-3.2.1	K1	1

17	b	Considering each of the listed review types: 1. Technical review - This type of review is performed by technically qualified reviewers and led by a moderator. The objectives are to gain consensus and make decisions on technical problems while also evaluating quality and building confidence in the work product, generating new ideas, motivating and enabling authors to improve, and detecting anomalies 2. Informal review - The main objective is to detect anomalies. The process is not defined and does not require formal documented output 3. Inspection - This is the most formal review type, and it follows the complete generic review process. The primary objective is to find the most anomalies, and other objectives include evaluating quality and building confidence in the work product, motivating and enabling authors to improve, and collecting metrics that can be used to enhance the software development life cycle (SDLC), including the inspection process. The author cannot act as the review leader or scribe 4. Walkthrough - Led by the author, this type of review serves various objectives such as evaluating quality and building confidence in the work product, educating reviewers, gaining consensus, generating new ideas, motivating and enabling authors to improve, and detecting anomalies. Reviewers might perform an individual review before the walkthrough, but this is not mandatory A. Includes objectives such as gaining consensus, generating new ideas, and motivating authors to improve (A) B. The main objective is detecting potential defects and it generates no formal documented output (D) C. The main objective is detecting potential defects and it requires metrics collection to support process improvement (C)	FL-3.2.4	K2	1

Question Number (#)	Correct Answer	Explanation / Rationale	Learning Objective (LO)	K-Level	Number of Points
		D. Includes objectives such as educating reviewers, gaining consensus, generating new ideas and detecting potential defects (B) Thus: a) Is not correct b) Is correct. The correct match is: 1A, 2D, 3C, 4B c) Is not correct d) Is not correct			
18	b	a) Is not correct. To ensure successful reviews, it's important to secure management's support for the review process, however that does not mean that they should participate as reviewers b) Is correct. To ensure successful reviews, it's important to break the work product into parts that are small enough to be reviewed in a reasonable timescale to prevent reviewers from losing focus during individual review or review meetings c) Is not correct. To ensure successful reviews, it's important to clearly define objectives and measurable exit criteria, without evaluating participants d) Is not correct. To ensure successful reviews, it's important to break down the review into smaller chunks to prevent reviewers from losing focus during individual review or review meetings. So you should not plan to cover one document per review	FL-3.2.5	K1	1

Question Number (#)	Correct Answer	Explanation / Rationale	Learning Objective (LO)	K-Level	Number of Points
19	c	a) Is not correct. In most cases both black-box test techniques and experience-based test techniques can be used for the same test objects b) Is not correct. Both black-box test techniques and experience-based test techniques can be used at all test levels c) Is correct. Black-box test techniques (also known as specification-based techniques) are based on an analysis of the specified behavior of the test object without reference to its internal structure. So, the test basis is usually a specification. Experience-based test techniques effectively use the knowledge and experience of testers for the design and implementation of test cases. This means that the tester, when designing tests, may not use the specification at all d) Is not correct. Experience-based test techniques can detect defects that may be missed using black-box (and white-box) test techniques. Hence, experience-based test techniques are complementary to black-box test techniques and white-box test techniques and both black-box test techniques and experience-based test techniques can be used in all SDLCs	FL-4.1.1	K2	1

Question Number (#)	Correct Answer	Explanation / Rationale	Learning Objective (LO)	K-Level	Number of Points
20	c	a) Is not correct. These three values achieve full coverage of the equivalence partitions, but full coverage can be achieved with two values b) Is not correct. These three values achieve full coverage of the equivalence partitions, but full coverage can be achieved with two values c) Is correct. Value “1” covers “length incorrect” and “number of different digits incorrect”. Value “1234” covers “length correct” and “number of different digits correct”. These two values cover all four identified equivalence partitions d) Is not correct. This set does not cover the “number of different digits incorrect” equivalence partition	FL-4.2.1	K3	1

Question Number (#)	Correct Answer	Explanation / Rationale	Learning Objective (LO)	K-Level	Number of Points
21	d	The equivalence partitions are: {…, 99, 100}, {101, 102, …, 198, 199}, {200, 201, …}. Thus, there are 4 boundary values, which are: 100, 101, 199 and 200. In 2-value BVA, for each boundary value there are two coverage items (the boundary value and its closest neighbor belonging to the adjacent partition). As the closest neighbors are also boundary values in the adjacent partition, then there are just four coverage items. Thus: a) Is not correct. Only 100 and 200 are valid coverage items for 2-value BVA, so we achieve 50% coverage b) Is not correct. Only 100 and 200 are valid coverage items for 2-value BVA, so we achieve 50% coverage c) Is not correct. Only 100 and 101 are valid coverage items for 2-value BVA, so we achieve 50% coverage d) Is correct. 101, 199 and 200 are valid coverage items for 2-value BVA, so we achieve 75% coverage	FL-4.2.2	K3	1
22	d	a) Is not correct. The combination (T, T, F) does not match any rule. This is an example of omission, not a contradiction b) Is not correct. The combination (T, F, T) matches only one column, R2, so there is no contradiction c) Is not correct. Both combinations (T, T, T) and (F, T, T) match only one column, R1, so there is no contradiction d) Is correct. The combination (F, F, F) matches both R2 and R3, but R2 and R3 have different actions, so this shows a contradiction between R2 and R3.	FL-4.2.3	K3	1

Question Number (#)	Correct Answer	Explanation / Rationale	Learning Objective (LO)	K-Level	Number of Points
23	a	The following three transitions: "REQUESTING -> CONFIRMED" "WAITING LIST -> CONFIRMED" "WAITING LIST -> END" cannot appear in the same test case, which suggests that at least three test cases are required. All the other transitions can appear in combination with one or more of these three transitions, so we need a minimum of three test cases. In fact, only three sequences are possible: TC1: START (Room request) → REQUESTING (Available) → CONFIRMED (Pay) → END TC2: START (Room request) → REQUESTING (Not available) → WAITING LIST (Available) → CONFIRMED (Pay) → END TC3: START (Room request) → REQUESTING (Not available) → WAITING LIST (Cancel) → END Thus: a) Is correct b) Is not correct c) Is not correct d) Is not correct	FL-4.2.4	K3	1
24	c	In branch testing the coverage items are branches, which are represented by the edges of a control flow graph. There are 8 edges in the control flow graph. Thus: a) Is not correct b) Is not correct c) Is correct d) Is not correct	FL-4.3.2	K2	1

Question Number (#)	Correct Answer	Explanation / Rationale	Learning Objective (LO)	K-Level	Number of Points
25	a	a) Is correct. Performing only black-box testing does not provide a measure of actual code coverage. White-box coverage measures provide an objective measurement of coverage and provide the necessary information to allow additional tests to be generated to increase this coverage, and subsequently increase confidence in the code b) Is not correct. This statement is false, and also it does not answer the question (it has nothing to do with black-box testing) c) Is not correct. In general there are no subsumes relationships between white-box and black-box techniques d) Is not correct. White-box techniques are used to design tests based on the test object itself, while black-box techniques are used to design tests based on the specification. Therefore, there is no relation between coverage items derived from these two types of techniques	FL-4.3.3	K2	1

Question Number (#)	Correct Answer	Explanation / Rationale	Learning Objective (LO)	K-Level	Number of Points
26	b	a) Is not correct. Exploratory testing uses test charters, not a list of possible defects/failures. Although exploratory testing can incorporate the use of other test techniques, in this case fault attack is the most likely option b) Is correct. This is a list of possible failures. Fault attacks are a methodical approach to the implementation of error guessing and require the tester to create or acquire a list of possible errors, defects and failures, and to design tests that will identify defects associated with the errors, expose the defects, or cause the failures c) Is not correct. The tester is using a checklist of items to support their testing. Both error guessing and checklist-based testing use such lists, however, the list here is of possible failures, not test conditions, and so the MOST PROBABLE test technique is fault attack, which focuses on errors, defects and failures d) Is not correct. BVA is based on an analysis of boundary values of equivalence partitions. The above list does not mention equivalence partitions or their boundaries	FL-4.4.1	K2	1

Question Number (#)	Correct Answer	Explanation / Rationale	Learning Objective (LO)	K-Level	Number of Points
27	d	a) Is not correct. Although it is true that the tester can implement and execute detailed test cases based on the checklist, it does not explain how this would result in increased coverage b) Is not correct. Checklist items should not be automated. But even if they are, the automated test scripts always execute the tests in the same way, which usually does not result in increased coverage c) Is not correct. It is true that each checklist item should be tested separately and independently. But this impacts the test execution order and does not impact the achieved coverage, and so does not result in increased coverage d) Is correct. If the checklists are high-level, some variability in the actual testing is likely to occur, resulting in potentially greater coverage but less repeatability. If two testers follow a checklist of high-level items, each of them may use different test data, test steps, etc. This way, one tester will probably cover some areas not covered by the other tester and this will result in increased coverage	FL-4.4.3	K2	1

Question Number (#)	Correct Answer	Explanation / Rationale	Learning Objective (LO)	K-Level	Number of Points
28	b	a) Is not correct. This acceptance criterion describes what rules or regulations the system must adhere to (in this case, the right to be forgotten). This is an example of a rule-oriented acceptance criterion b) Is correct. This acceptance criterion describes an example scenario that must be realizable by the system. This is an example of a scenario-oriented acceptance criterion c) Is not correct. This sentence looks more like a line of code that implements some business rule. Acceptance criteria should be written in collaboration with business representatives, and therefore should be written in language they understand. This sentence will most likely be unintelligible to these stakeholders d) Is not correct. This acceptance criterion describes what rules or regulations the system must adhere to and how compliance will be ensured. Therefore, this is an example of a rule-oriented acceptance criterion, not a scenario-based acceptance criterion	FL-4.5.2	K2	1
29	d	a) Is not correct. We want to check that Special users have the rights of Regular users, so we need to test access rights for a Special user, not for a Regular user b) Is not correct. We want to check that Special users have the rights of Regular users, so we need to test access rights for a Special user, not for a Regular user c) Is not correct. There is no floor 5 described in the acceptance criteria. The test cases should not extend the scope of the user story. But even if we would like to perform negative testing, this test is not directly related to AC3 d) Is correct. This way we can check if a Special user can access floors which are accessible to a Regular user	FL-4.5.3	K3	1

Question Number (#)	Correct Answer	Explanation / Rationale	Learning Objective (LO)	K-Level	Number of Points
30	a	a) Is correct. The test plan may include test data *requirements* (as part of the test approach), but not the detailed test data for test cases. Test data is part of the test cases, not the test plan. Also, it is usually impossible to define such data when the test plan is created, because it is not exactly known what the components will look like b) Is not correct. One of the purposes of a test plan is to help ensure that the performed test activities will meet the established criteria, by including entry criteria and exit criteria. The code coverage criteria are an example of such criteria for the component test level c) Is not correct. Documentation templates are typical content of a test plan. This helps to facilitate communication between the stakeholders by defining a standard way of communicating or reporting d) Is not correct. One of the purposes of a test plan is to demonstrate that testing will adhere to the existing test policy and test strategy, or to explain why the testing will deviate from them. This is an example of explaining the deviation, regarding the test levels that will be (or will not be) followed	FL-5.1.1	K2	1
31	c	From the graph we have: A(4)=6 and A(3)=8 (the last two gray boxes). From the formula we obtain: E(5) = (3*A(4) + A(3)) / 4 = (3*6+8) / 4 = 26 / 4 = 6.5 person-days. Thus: a) Is not correct b) Is not correct c) Is correct d) Is not correct	FL-5.1.4	K3	1

Question Number (#)	Correct Answer	Explanation / Rationale	Learning Objective (LO)	K-Level	Number of Points
32	a	We want to run test cases according to their priorities, but we also need to consider the dependencies. If we only consider priorities, we want to first run TC 5 and TC 7 (highest priority), then TC 1, TC 3, and TC 4, and finally TC 2 and TC 6 (lowest priority). However, in order to run TC 7, we need to first run TC 4. In order to run TC 5, we need to run TC 4 and TC 2, but TC 2 is blocked by TC 1, which should be run prior to TC 2. So, in order to run priority 1 test cases as early as possible, the first five test cases should be: TC 4 - TC 7 - TC 1 - TC 2 - TC 5. Next, we need to run TC 3, because it has higher priority than TC 6. Thus the full schedule will be TC 4 – TC 7 – TC 1 – TC 2 – TC 5 – TC 3 – TC 6. So, the sixth test case will be TC 3. Thus: a) Is correct b) Is not correct c) Is not correct d) Is not correct	FL-5.1.5	K3	1
33	b	a) Is not correct. The test pyramid model does not provide information about test priorities b) Is correct. The test pyramid model shows that different tests have different levels of granularity c) Is not correct. The test pyramid model is independent of coverage criteria d) Is not correct. Test pyramid model does not show any relations between different tests	FL-5.1.6	K1	1

Question Number (#)	Correct Answer	Explanation / Rationale	Learning Objective (LO)	K-Level	Number of Points
34	d	a) Is not correct. Testing quadrants group test levels and test types separately according to several criteria. They do not represent any combinations of test levels and test types and they are not related to any location within a software development lifecycle. Both test levels and test types are treated separately in the testing quadrants model b) Is not correct. Testing quadrants group test levels and test types according to several criteria. They do not describe the degree of granularity of individual test types performed at each test level. Such a model, regarding the test levels, is called the test pyramid c) Is not correct. The statement is wrong, because in general any test type can be performed at any test level d) Is correct. The testing quadrants group test levels, test types, activities, test techniques and work products in Agile software development. In this model, tests can be business facing or technology facing. Tests can support the team (i.e., guide the development) or critique the product (i.e., measure its behavior against expectations). The combination of these two viewpoints determines the four quadrants	FL-5.1.7	K2	1
35	c	a) Is not correct. Risk monitoring is part of risk control, not risk analysis b) Is not correct. Risk identification itself does not allow us to implement risk mitigation activities. The mitigating actions are defined during the risk control phase c) Is correct. This is an example of how risk analysis influences the thoroughness and scope of testing d) Is not correct. Coverage items are derived using test techniques, not through risk analysis	FL-5.2.3	K2	1

Question Number (#)	Correct Answer	Explanation / Rationale	Learning Objective (LO)	K-Level	Number of Points
36	b	a) Is not correct. Test progress reports are mostly used during test monitoring and control, and test completion, not during test design b) Is correct. A test completion report is prepared during test completion, when a project, test level, or test type is complete and when, ideally, its exit criteria have been met. This report uses information from test progress reports and other data c) Is not correct. Test progress reports are mostly used during test monitoring and control, and test completion, not during test analysis d) Is not correct. Test progress reports are most used during test monitoring and control, and test completion, not during test planning	FL-5.3.2	K2	1
37	d	a) Is not correct. When a user reports a software failure, thanks to the unique identification of commits, it is possible to reassemble the files from the software version which was used by the user (as well as the corresponding versions of the test scripts) and thus reproduce the failure and locate the defect faster b) Is not correct. If a change to the test environment causes unexpected issues during testing, configuration management allows testers to roll back to a previous version of the environment. This ensures that testing can continue without being affected by the change c) Is not correct. Configuration management ensures that all identified documentation (e.g., requirement specifications) and software items are referenced unambiguously in test documentation (e.g., test plans) d) Is correct. This is ensured by the defect management, not configuration management process	FL-5.4.1	K2	1

Question Number (#)	Correct Answer	Explanation / Rationale	Learning Objective (LO)	K-Level	Number of Points
38	b	a) Is not correct. This is important, but not as important as test environment elements b) Is correct. The important thing that is missing is the identification of the browser and device used for the testing. The browser and device information are important because such a defect can be browser- or device-specific. For example, a login button may work fine on one browser (or one version of a specific browser) but not on another. Therefore, the browser and device information can help the developers to reproduce the issue and find the root cause of the problem more quickly c) Is not correct. The test object is identified (WebShop v0.99) d) Is not correct. The impact is included – this is severity (high)	FL-5.5.1	K3	1
39	d	a) Is not correct. Test execution and coverage tools facilitate the automated execution of test cases and the measurement of the coverage achieved by running those test cases. However, these tools do not help with the organization of defects and configuration management b) Is not correct. Test design and implementation tools facilitate the generation of test cases, test data and test procedures, but they do not help with the organization of defects and configuration management c) Is not correct. Defect management tools are used to manage defects but are not testing tools and are not used to organize test cases or configuration management d) Is correct. Test management tools increase the test process efficiency by facilitating the management of the software development lifecycle (SDLC), requirements, tests, defects, and configuration management	FL-6.1.1	K2	1

Question Number (#)	Correct Answer	Explanation / Rationale	Learning Objective (LO)	K-Level	Number of Points
40	d	a) Is not correct. 'The capability of generating test cases without access to the test basis' is not possible. The generation of test cases by either testers or tools requires access to the test basis b) Is not correct. 'The achievement of increased coverage through more objective assessment' is not a direct benefit of test automation. Test automation will provide more objective assessment of coverage, however that objective assessment will not increase the coverage. Only by using the results of the coverage to write further test cases can the coverage possibly be increased c) Is not correct. 'The increase in test execution times available with higher processing power' is a contradictory statement as higher processing power would normally reduce execution times, and increased execution times are not a benefit as the testing would take longer d) Is correct. The prevention of human errors through greater consistency and repeatability is a benefit of test automation as test automation cannot suffer from human errors. For instance, it means that tests are consistently derived from requirements, test data is created in a systematic manner, and tests are executed by a tool in the same order with the same frequency	FL-6.2.1	K1	1