

Sample Exam: Answers

ISTQB® Technical Test Analyst Syllabus

Advanced Level

Exam ID: A

Version 2019 1.0

International Software Testing Qualifications Board



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Exam Working Group 2019

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

Acknowledgements

This document was produced by a core team from the International Software Testing Qualifications Board Examination Working Group:

Minna Aalto	Debra Friedenber	Ingvar Nordström
Rex Black	Brian Hambling	Stuart Reid
Jean-Baptiste Crouigneau	Inga Hansen	Marco Sogliani
Mette Bruhn-Pedersen	Kari Kakkonen	Mario Winter

and the Advanced Level Working Group:

Graham Bath	Judy McKay	Mike Smith
-------------	------------	------------

The core team thanks the Examination Working Group review team, the Syllabus Working Group and the National Boards of the following review participants for their suggestions and input:

Laura Albert	Dietrich Leimsner	Lucjan Stapp
Markus Beck	Rik Marselis	Benjamin Timmermans
Jean-Baptiste Crouigneau	Blair Mo	Jan Versmissen
Wim Decoutere	Gary Mogyorodi	Robert Werkhoven
Ágota Horváth	Michael Stahl	Paul Weymouth

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Version	Date	Remarks
2.0	October 5th , 2019	EWG - Complete Exam Set document.
V2019 1.0	December, 2019	Revisions made by AELWG to enable launch Added appendix to include LOs not covered in the sample exam.

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Introduction

The sample exam answers and associated justifications in this document have been created by a team of subject matter experts of Exam Working Group with the aim of assisting ISTQB® Member Boards and Exam Boards in their question writing activities.

The questions and their associated answers cannot be used as-is in any official examination, but they should serve as guidance for question writers. Given the wide variety of formats and subjects, they should offer many ideas for the individual Member Boards on how to create appropriate answer sets for their examinations. Please refer to the separate sample questions document for the questions that correspond to the answers.

The answers are organized in the following way:

- Question number
- Correct answer
- Justification / Rationale
- Learning Objective number
- K-level
- Number of points

An answer key is provided to give an overview of all the above information with the exception of the justification / rationale.

Answer Key

Question Number	Correct Answer	LO	K-Level	Points
1	a,b	TTA-1.2.1	K2	1
2	d	TTA-1.2.2	K2	1
3	a	TTA-2.2.1	K3	2
4	c	TTA-2.3.1	K3	2
5	c	TTA-2.4.1	K3	2
6	a	TTA-2.5.1	K3	2
7	b	TTA-2.6.1	K3	2
8	a, c	TTA-2.7.1	K2	1
9	d	TTA-2.8.1	K4	3
10	c	TTA-2.8.1	K4	3
11	b	TTA-3.2.1	K3	2
12	d	TTA-3.2.1	K3	2
13	a	TTA-3.2.2	K2	1
14	c	TTA-3.2.3	K3	2
15	b,d	TTA-3.2.3	K3	2
16	b	TTA-3.2.4	K2	1
17	c	TTA-3.3.1	K3	2
18	c	TTA-4.2.1	K4	3
19	a,d	TTA-4.2.1	K4	3
20	a	TTA-4.2.2	K3	2
21	b	TTA-4.2.2	K3	2
22	c	TTA-4.2.3	K2	1
23	a	TTA-4.2.3	K2	1

Question Number	Correct Answer	LO	K-Level	Points
24	c	TTA-4.2.4	K3	2
25	b	TTA-4.2.4	K3	2
26	b,e	TTA-4.3.1	K2	1
27	a	TTA-4.4.1	K2	1
28	a,d	TTA-4.5.1	K2	1
29	d	TTA-4.6.1	K2	1
30	b	TTA-4.7.1	K2	1
31	c	TTA-5.1.1	K2	1
32	c	TTA-5.2.1	K4	3
33	a	TTA-5.2.1	K4	3
34	c	TTA-5.2.2	K4	3
35	b	TTA-5.2.2	K4	3
36	b, e	TTA-6.1.1	K2	1
37	a	TTA-6.1.2	K2	1
38	d	TTA-6.1.3	K2	1
39	c, d	TTA-6.1.4	K3	2
40	c	TTA-6.2.1	K2	1
41	b	TTA-6.2.2	K2	1
42	d, e	TTA-6.2.3	K2	1
43	a	TTA-6.2.4	K2	1
44	a	TTA-6.2.5	K2	1
45	d	TTA-6.2.6	K2	1

Question	Correct Answer	Explanation / Rationale	Learning Objective (LO)	K-level	Number of Points
Answer 1	a, b	a) Correct: see syllabus section 1.2. b) Correct: see syllabus section 1.2. c) Incorrect: accuracy of the computations is a concern for the TA, not the TTA. d) Incorrect: budgetary issues should be handled by the TM, not the TTA. e) Incorrect: high change rates in business use cases affect the functionality testing.	TTA-1.2.1	K2	1
Answer 2	d	a) Incorrect: the TA would be expected to work with this group of people. b) Incorrect: the TA would be expected to work with this group of people. c) Incorrect: the TA would be expected to work with this group of people. d) Correct: per the syllabus. The TTA is expected to work with the technical people on the project, including developers.	TTA-1.2.2	K2	1
Answer 3	a	a) Correct. The three test cases are defined by the following inputs: <ul style="list-style-type: none"> • Sufficient water, milk, low fat, sugar • Sufficient water, milk, not low fat, sugar or not sugar • Insufficient water b) Incorrect c) Incorrect d) Incorrect	TTA-2.2.1	K3	2

Answer 4	c	<p>a) Incorrect</p> <p>b) Incorrect</p> <p>c) Correct: the following conditions ensure that all decision outcomes are tested: 1) A, B 2) A, not B 3) not A, C 4) not A, not C.</p> <p>d) Incorrect</p>	TTA-2.3.1	K3	2
Answer 5	c	<p>a) Incorrect: covers the outcomes but not the atomic conditions that affect the decision outcome.</p> <p>b) Incorrect: does not sufficiently cover the atomic conditions affecting the decision outcome.</p> <p>c) Correct: this answer provides the following: (T or F) + T (T or F) + F (F or T) + T (F or F) + T This tests all values for the atomic conditions as well as all outcomes with the minimum number of tests.</p> <p>d) Incorrect: does not sufficiently cover the atomic conditions affecting the decision outcome.</p>	TTA-2.4.1	K3	2
Answer 6	a	<p>a) Correct: multiple condition testing requires testing the entire truth table (all combinations of true and false possible). This requires all conditions provided above to be tested.</p> <p>b) Incorrect</p> <p>c) Incorrect</p> <p>d) Incorrect</p>	TTA-2.5.1	K3	2
Answer 7	b	<p>a) Incorrect: 3 and 5 results in the same path.</p> <p>b) Correct: path coverage requires that the statement evaluates to true and to false. 2 will give you False and 3 will give you True.</p> <p>c) Incorrect: 1 and 3 results in the same path.</p> <p>d) Incorrect: only tests the TRUE, not the FALSE</p>	TTA-2.6.1	K3	2

Answer 8	a, c	<p>a) Correct: this is listed under types of defects found in the syllabus section 2.7.</p> <p>b) Incorrect: this is targeted by maintainability testing.</p> <p>c) Correct: this is listed under types of defects found in the syllabus section 2.7.</p> <p>d) Incorrect: this is not listed in the targeted types of defects in the syllabus section 2.7.</p> <p>e) Incorrect: this is not listed in the targeted types of defects in the syllabus section 2.7.</p>	TTA-2.7.1	K2	1
Answer 9	d	<p>a) Incorrect: this is the same as simple MC/DC as decision coverage is subsumed by MC/DC.</p> <p>b) Incorrect: this is the same as decision coverage as statement coverage is subsumed by decision coverage. Decision coverage, however, provides a lower level of rigor than MC/DC or multiple condition coverage.</p> <p>c) Incorrect: MC/DC is required for the highest-level criticality software, but this scenario requires this level of testing to exceed this, so this is not a correct option.</p> <p>d) Correct: MC/DC is required for the highest-level criticality software, which this presumably is since several thousand spectators could be killed/injured. Multiple condition coverage provides a higher level of coverage than MC/DC and as this 'exceeds' that provided by MC/DC this is the correct option given the scenario.</p>	TTA-2.8.1	K4	3

<p>Answer 10</p>	<p>c</p>	<p>a) Incorrect: this is the same as simple MC/DC as decision coverage is subsumed by MC/DC. See answer d below. b) Correct: Statement coverage with decision coverage is appropriate for the sequential actions and simple error handling routines. c) Incorrect: MC/DC is for the highest-level criticality software. The user stories are business critical but only have sequential code and the simple error handling routines do not have the level of complexity to justify MC/DC coverage. d) Incorrect: MC coverage is not appropriate where simple error handling routines are to be tested.</p>	<p>TTA-2.8.1</p>	<p>K4</p>	<p>3</p>
<p>Answer 11</p>	<p>b</p>	<p>a) Incorrect b) Correct: the decision at line 10 will always be true as var1 will always be 5 at line 10, thus line 13 is unreachable. The loop at line 5 can only be left if var2 is 10 or more, but each time through the loop var2 is reset at line 7 back to 4 and only incremented by 1 in the loop at line 15, so it only ever reaches 5. c) Incorrect d) Incorrect</p>	<p>TTA-3.2.1</p>	<p>K3</p>	<p>2</p>
<p>Answer 12</p>	<p>d</p>	<p>a) Incorrect b) Incorrect c) Incorrect d) Correct: Cyclomatic complexity refers to the number of independent paths through a program. In the Easy program there are three independent paths. Path 1: (easy = false) Path 2: (easy = true, var1 = 5) Path 3: (easy = true, var1 not = 5)</p>	<p>TTA-3.2.1</p>	<p>K3</p>	<p>2</p>

Answer 13	a	a) Correct: Anomalies: total: used at line 6 before it is defined. commission_lo: defined at line 12 & no subsequent use b) Incorrect c) Incorrect d) Incorrect	TTA-3.2.2	K2	1
Answer 14	c	a) Incorrect b) Incorrect c) Correct: CC of 10 or over suggests this is worth addressing. CH of Low suggests this is worth addressing. CP of High suggests this is worth addressing. CO of 10% or less suggests this is worth addressing. RE of 9 or more suggests this is worth addressing. d) Incorrect	TTA-3.2.3	K3	2

<p>Answer 15</p>	<p>b, d</p>	<p>a) Incorrect: The code is clearly structured with control elements (e.g. loop, if-then-else). Static analysis is unlikely to identify any improvements to the control structure.</p> <p>b) Correct: Variable naming used in the program does not clearly indicate what the variable represents. Static analysis can apply naming convention rules which would identify these maintenance issues in the program and recommend that the variables be given names that are readable and conform to any applicable naming rules.</p> <p>c) Incorrect: There are no global variables defined and no other programs called. Coupling is not an improvement area.</p> <p>d) Correct: Static analysis identifies code which has a low amount of commenting compared to executable code. Since the program has no comments at all, this would be highlighted as an area for improving code maintainability.</p> <p>e) Incorrect: Static analysis can apply indentation rules but in the case of the TRICKY program there is adequate indentation.</p>	<p>TTA-3.2.3</p>	<p>K3</p>	<p>2</p>
<p>Answer 16</p>	<p>b</p>	<p>a) Incorrect: this is a use of call graphs, but is used for unit testing, not integration testing per the syllabus.</p> <p>b) Correct: see syllabus section 3.2.4</p> <p>c) Incorrect: determining conditional and unconditional calls can be used for integration but using them for performance analysis has nothing to do with integration.</p> <p>d) Incorrect: call graphs don't detect memory leaks or possible areas for memory leaks.</p>	<p>TTA-3.2.4</p>	<p>K2</p>	<p>1</p>

<p>Answer 17</p>	<p>c</p>	<p>a) Incorrect: dynamic analysis is not typically used for measuring response times (it requires instrumentation and so makes response time measurement impractical), but instead provides lower level performance metrics - these can be used for performance tuning. b) Incorrect: call graphs are generated by static analysis. c) Correct: dynamic analysis can identify memory access violations caused by a wild pointer and these could be causing the 'occasional' crashes. d) Incorrect: the scenario tells us that automated garbage collection was used, so it is unlikely programmers will need to release memory. May also be since memory leaks usually cause performance degradation and ultimately out-of-resource errors from the OS side.</p>	<p>TTA-3.3.1</p>	<p>K3</p>	<p>2</p>
<p>Answer 18</p>	<p>c</p>	<p>a) Incorrect: while subsequent releases of this system may be tested with real customer data, this is a new system and existing customer data is not available. b) Incorrect: there's no indication this is a distributed system. c) Correct: the bank is likely required by regulation to encrypt the customer financial data, which has testing implications. d) Incorrect: it's not clear whether this system will be used in-house (thus a production environment might be available) or sold to customers (thus production environments would likely not be available).</p>	<p>TTA-4.2.1</p>	<p>K4</p>	<p>3</p>

<p>Answer 19</p>	<p>a, d</p>	<p>a) Correct: The requirements stated by the customer for performance efficiency are vague and must be made more precise before the specialist tools team can implement the tests. b) Incorrect: A specialist tools team can be assumed to have issues of tool acquisition and training under control. c) Incorrect: A fully representative test environment has been made available. d) Correct: If components are distributed across different sites and organizations, the effort required to plan and co-ordinate the system integration tests may be significant and must be addressed in the test planning. e) Incorrect: Data security considerations are not mentioned in the scenario.</p>	<p>TTA-4.2.1</p>	<p>K4</p>	<p>3</p>
<p>Answer 20</p>	<p>a</p>	<p>a) Correct: fault-tolerance testing is part of reliability. b) Incorrect: we are not worried about response time, throughput, or resource utilization here. c) Incorrect: this risk does not relate to usability. d) Incorrect: a change of the type of network is not in question here.</p>	<p>TTA-4.2.2</p>	<p>K3</p>	<p>2</p>
<p>Answer 21</p>	<p>b</p>	<p>a) Incorrect: Adaptability testing checks whether a given application can function correctly in all intended target environments. b) Correct: Replaceability testing focuses on the ability of software components (such as databases) to be exchanged for others. c) Incorrect: Capacity testing relates to a performance efficiency characteristic. d) Incorrect: Co-existence testing considers the degree to which a test item can function satisfactorily alongside other independent products in a shared environment.</p>	<p>TTA-4.2.2</p>	<p>K3</p>	<p>2</p>

Answer 22	c	<p>a) Incorrect (is true): see syllabus section 4.5.4</p> <p>b) Incorrect (is true): see syllabus section 4.4.5</p> <p>c) Correct (is false) security testing may be scheduled for the unit, integration and system testing levels (see syllabus section 4.3.2)</p> <p>d) Incorrect (is true) Since maintainability is built into the code and the documentation for each individual code component, maintainability can be evaluated early in the lifecycle without having to wait for a completed and running system. (see syllabus section 4.6)</p>	TTA-4.2.3	K2	1
Answer 23	a	<p>a) Correct: Because reliability tests often require use of the entire system, reliability testing is most commonly done as part of system testing</p> <p>b) Incorrect: Co-existence issues should be analyzed when planning the targeted production environment but the actual tests are normally performed after system and user acceptance testing have been successfully completed.</p> <p>c) Incorrect: Adaptability tests may be performed in conjunction with installability tests and are typically followed by functional tests to detect any faults which may have been introduced in adapting the software to a different environment.</p> <p>d) Incorrect: Replaceability may also be evaluated by technical review or inspection at the architecture and design levels, where the emphasis is placed on the clear definition of interfaces to potential replaceable components.</p>	TTA-4.2.3	K2	1
Answer 24	c	<p>a) Incorrect: this is a usability failure, not a security defect.</p> <p>b) Incorrect: this is a security feature, not a security defect.</p> <p>c) Correct: a typical security defect.</p> <p>d) Incorrect: if it is a defect at all, is a portability defect.</p>	TTA-4.2.4	K3	2

<p>Answer 25</p>	<p>b</p>	<p>a) Incorrect: The test environment is fully representative and the data volume for a transaction is low. It can be assumed that the increase in the data volumes from the increased number of virtual users will not prevent realistic loads from being generated for the scalability testing.</p> <p>b) Correct: Scalability testing focuses on the ability of a system to meet future efficiency requirements, which may be beyond those currently required. The scenario states that the current system's response to user inputs is just below the maximum specified time, but that the number of users is expected to double over the next 12 months. There is a high risk that the planned scalability tests will show that the system fails to meet future requirements for expected numbers of users.</p> <p>c) Incorrect: There is no indication in the scenario that the system uses disk capacity resources. Compared to option b this is less likely to be a source of defects.</p> <p>d) Incorrect: During the scalability tests there is a possibility that the system actually fails. However, the system has so far run reliably and the expected increases in user numbers is less likely to a cause system failure to occur than the reduced response time problem described in option b.</p>	<p>TTA-4.2.4</p>	<p>K3</p>	<p>2</p>
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Answer 26	b, e	<p>a) Incorrect: This relates to modifiability (see syllabus section 4.6.1)</p> <p>b) Correct: see syllabus section 4.3.1</p> <p>c) Incorrect: This relates to installability (see syllabus section 4.7.2)</p> <p>d) Incorrect: This relates to functionality</p> <p>e) Correct: see syllabus section 4.3.1</p>	TTA-4.3.1	K2	1
Answer 27	a	<p>a) Correct: Testing fault-tolerance is part of reliability testing, but it may be hard or even impossible to force faults to occur in hardware or in the OS.</p> <p>b) Incorrect: This relates to performance efficiency testing.</p> <p>c) Incorrect: “Vulnerabilities” are associated with security testing, not reliability testing.</p> <p>d) Incorrect: This relates to performance efficiency testing.</p>	TTA-4.4.1	K2	1
Answer 28	a, d	<p>a) Correct: If the web servers are only dimensioned for a normal number of transactions, they will not scale to the maximum.</p> <p>b) Incorrect: Availability of people to simulate a load is not a valid reason.</p> <p>c) Incorrect: Re-using functional tests is not a reason to conduct performance tests</p> <p>d) Correct: People may abandon the site if their enquiry responses take too long. This will damage business at the peak booking season.</p> <p>e) Incorrect: Having skills in performance testing tools is good, but it is not a reason to conduct performance tests.</p>	TTA-4.5.1	K2	1

Answer 29	d	<p>a) Incorrect: may be worthy of consideration but does not have higher priority over reusability.</p> <p>b) Incorrect: see answer a</p> <p>c) Incorrect: see answer a</p> <p>d) Correct: Reusability addresses the degree to which an asset can be used in more than one system, or in building other assets. This directly applies to the situation described.</p>	TTA-4.6.1	K2	1
Answer 30	b	<p>a) Incorrect: This is another aspect of portability which does not have a higher priority over adaptability.</p> <p>b) Correct: Adaptability may relate to the ability of the software to be ported to various specified environments by performing a predefined procedure. This directly applies to the situation described</p> <p>c) Incorrect: This is another aspect of portability which does not have a higher priority over adaptability</p> <p>d) Incorrect: Co-existence focusses on different applications running on the same environment</p>	TTA-4.7.1	K2	1
Answer 31	c	<p>a) Incorrect: this response indicates a willingness to co-operate in getting the review done but the analyst will be unable to make a full contribution without preparation and the review would therefore be less effective than it should be.</p> <p>b) Incorrect: this response flags up the lack of preparation time but does not insist on allowing time for adequate preparation.</p> <p>c) Correct.</p> <p>d) Incorrect: this response is accurate, but preparation would remove the obstacle. This is therefore not the best response when declining to attend a review.</p>	TTA-5.1.1	K2	1

<p>Answer 32</p>	<p>c</p>	<p>a) Incorrect: data caching helps performance, not memory use. b) Incorrect: transaction concurrency uses more memory. c) Correct: this would reduce unnecessary memory use but does have the possible problem of the delayed performance when the class is needed. d) Incorrect: connection pooling can help memory and performance, but the possible problem is in running out of connections, not in losing a process.</p>	<p>TTA-5.2.1</p>	<p>K4</p>	<p>3</p>
<p>Answer 33</p>	<p>a</p>	<p>a) Correct: Load balancing: will ensure that peak volumes can be handled by spreading the load to additional servers. b) Incorrect: Caching data may not guarantee that the rapidly changing currency rates are accurately shown in real-time. c) Incorrect: Object orientation practice does not target performance efficiency. d) Incorrect: Data replication may not guarantee that the constantly changing currency rates are accurately shown in real-time.</p>	<p>TTA-5.2.1</p>	<p>K4</p>	<p>3</p>
<p>Answer 34</p>	<p>c</p>	<p>a) Incorrect: the comment is correct. b) Incorrect: we have no way of knowing if there is an external library available. c) Correct: it is most likely the card will be Visa or MC so that check should be exercised first. d) Incorrect: the else handles all conditions not met by the if.</p>	<p>TTA-5.2.2</p>	<p>K4</p>	<p>3</p>

Answer 35	b	<p>a) Incorrect: The variable “fileID” is checked before attempting to access the sales file (see lines 6,7 and 8)</p> <p>b) Correct: On line 21 the divisor “number_of_months” is not checked for 0. This should have been checked before line 21 is executed.</p> <p>c) Incorrect: comments and code are consistent</p> <p>d) Incorrect: all declared variables (lines 1 and 2) are used in the code</p>	TTA-5.2.2	K4	3
Answer 36	b, e	<p>a) Incorrect: test data is normally the responsibility of the test analysts or business analysts.</p> <p>b) Correct: see syllabus section 6.1.</p> <p>c) Incorrect: tools read test cases written with keywords and call the appropriate test functions or scripts which implement them. They do not create the scripts.</p> <p>d) Incorrect: who performs test analysis and design (even of automated test cases) is not decided by the TTA.</p> <p>e) Correct: see syllabus section 6.1.</p>	TTA-6.1.1	K2	1
Answer 37	a	<p>a) Correct: keyword-driven tests are data-driven, too, but also have process-based keywords.</p> <p>b) Incorrect: because it’s backwards.</p> <p>c) Incorrect: keyword-driven tests are easier to maintain (due to the separation of roles).</p> <p>d) Incorrect: due to the difficulty in defining the correct architecture for the keyword-driven framework.</p>	TTA-6.1.2	K2	1
Answer 38	d	<p>a) Incorrect: elimination of duplication is a positive for a toolset.</p> <p>b) Incorrect: ideally data should be exchanged with no manual intervention.</p> <p>c) Incorrect: using an IDE is often worthwhile as long as tools ‘fit’ the IDE.</p> <p>d) Correct: in syllabus section 6.1.1.</p>	TTA-6.1.3	K2	1

<p>Answer 39</p>	<p>c, d</p>	<p>a) Incorrect: the keywords are supposed to be about the business process supported by the application, not the test process. b) Incorrect: the keywords are supposed to be about the business process supported by the application, not the test process. c) Correct: it is explicitly mentioned in the scenario as being capabilities of the application. d) Correct: it is explicitly mentioned in the scenario as being capabilities of the application. e) Incorrect: might be a capability of the application, but it's not mentioned in the scenario, so it's not the most likely keyword on the list, and also since there was no mention that the product charges its customers.</p>	<p>TTA-6.1.4</p>	<p>K3</p>	<p>2</p>
<p>Answer 40</p>	<p>c</p>	<p>a) Incorrect: Input checking can be done by mutating test inputs, but to test input checking the inputs would need to be mutated. b) Incorrect: According to syllabus 6.2.1, 2nd paragraph, this is the task of the fault injection tools. c) Correct: According to syllabus 6.2.1, 1st paragraph, this is the task of the fault seeding tools. d) Incorrect: According to syllabus 6.2.1, 3rd paragraph, these tools are generally used by the technical test analyst.</p>	<p>TTA-6.2.1</p>	<p>K2</p>	<p>1</p>
<p>Answer 41</p>	<p>b</p>	<p>a) Incorrect: this is not an issue of more accurately measuring response times. b) Correct: in syllabus section 6.2.2. c) Incorrect: the script needs to be changed to take account of variability of different users and their transactions. d) Incorrect: measurements need to be taken during execution.</p>	<p>TTA-6.2.2</p>	<p>K2</p>	<p>1</p>

Answer 42	d, e	a) Incorrect: describes an MBT tool. b) Incorrect: describes a debugger. c) Incorrect: describes a fault seeding tool. d) Correct: in syllabus section 6.2.3. e) Correct: in syllabus section 6.2.3.	TTA-6.2.3	K2	1
Answer 43	a	a) Correct. b) Incorrect: MBT tools actually decrease the possible paths. c) Incorrect: MBT tools provide a different view to supplement functional testing. d) Incorrect: the MBT tool 'engine' does enable some execution threads to be saved (typically those related to failed test cases).	TTA-6.2.4	K2	1

<p>Answer 44</p>	<p>a</p>	<p>a) Correct: (is false) The statement about the xUnit framework is incorrect, it only supports the programmer when automating: „Such a framework generates test objects for each class that is created, thus simplifying the tasks that the programmer needs to do when automating the component testing." (Syllabus 6.2.5, second paragraph, last sentence).</p> <p>b) Incorrect: (is true) The statement about component test tools is true - as in a), especially with Java (6.2.5, second paragraph). The statement about build automation tools is correct cf. Syllabus 6.2.5, 4th paragraph: „Build automation tools often allow a new build to be automatically triggered any time a component is changed."</p> <p>c) Incorrect: (is true) Syllabus 6.2.5, 2nd paragraph: "...special test tools; these are collectively called xUnit frameworks. Such a framework generates test objects for each class that is created, thus simplifying the tasks that the programmer needs to do when automating the component testing. 4th paragraph: "Build automation tools often allow a new build to be automatically triggered any time a component is changed."</p> <p>d) Incorrect: (is true) The statement about component test tools is correct (see a) and b)). The statement about build automation tools is also correct (see justification for b)).</p>	<p>TTA-6.2.5</p>	<p>K2</p>	<p>1</p>
<p>Answer 45</p>	<p>d</p>	<p>a) Incorrect: A mobile simulator models the mobile platform's runtime environment.</p> <p>b) Incorrect: Applications compiled to be deployed and tested on an emulator are compiled into the actual byte-code that could be also used by the real device.</p> <p>c) Incorrect: Both simulators and emulators are useful in the early stage of development</p>	<p>TTA-6.2.6</p>	<p>K2</p>	<p>1</p>

		d) Correct: Applications tested on a simulator are compiled into a dedicated version, which works in the simulator but not on a real device			
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Answers to Alternative Questions

In the exam, certain questions may relate to different optional learning objectives. To ensure coverage of all learning objectives, the alternatives not considered in the sample exam are added below.

Question	Correct Answer	Explanation / Rationale	Learning Objective	K-Level	Number of Points
Alternative Question 26	c	a) Correct: Static analysis may be used to identify security threats b) Correct: Involvement of developers may be useful for implementing particular security attacks c) Incorrect: Operational profiles are generally considered for performance efficiency testing d) Correct: Approvals for simulating a security attack must always be obtained	TTA-4.3.2	K2	1
Alternative Question 27	c,e	a) Incorrect: Maturity is a reliability sub-characteristic, but is not as relevant as C and E for the given reliability requirement. b) Incorrect: Fault tolerance is a reliability sub-characteristic, but is not as relevant as C and E for the given reliability requirement. c) Correct: Testing this reliability sub-characteristic will focus on the availability of specified interfaces from other systems. d) Incorrect: Capacity testing is a performance efficiency sub-characteristic. It is not relevant for covering the reliability requirement. e) Correct: Recoverability: Testing this reliability sub-characteristic will focus on the architecture's ability to recover from a failure.	TTA-4.4.2	K2	1

Alternative Question 28	a,c	<p>a) Correct: Required hardware and network bandwidth needed to generate the maximum expected loads are critical planning considerations for estimating costs and enabling the maximum load to be simulated.</p> <p>b) Incorrect: Estimating the income expected from ticket sales is a marketing/sales activity.</p> <p>c) Correct: Acquiring representative user behavior patterns will enable representative loads to be simulated.</p> <p>d) Incorrect: Considering the modularity of the system under test is not relevant.</p> <p>e) Incorrect: Reviewing the system architecture may be a valuable task, but the question does not indicate that a web server replacement is planned. If this were the case, replaceability tests would be planned, not performance tests</p>	TTA-4.5.2	K2	1
Alternative Question 29/30	c	<p>a) Incorrect: this relates to adaptability</p> <p>b) Incorrect: this relates to modularity</p> <p>c) Correct</p> <p>d) Incorrect: this relates to resource utilization</p>	TTA-4.8.1	K2	1