TMap NEXT®

Test Engineer

Preparation Guide

Edition 201607

Content

1. Overview

TMap NEXT® Test Engineer (TMPTE.EN)

Summary

This module is based on the revised version of TMap, as described in the book *TMap® Next, for result-driven testing*. More and more organizations realize that the quality of IT products is a critical factor in a successful business. A good software development process is essential to the control of risks and delivery of high quality software. Structured testing provides insight into the quality of the information system and the risks present at any given point in the development lifecycle. The Test Management Approach (TMap) is the perfect example of a structured test approach. TMap is a leading standard for testing. Hundreds of organizations around the world are now using TMap.
The subjects of this module are: Framework and importance of testing; TMap life cycle acceptance and system tests; Development tests and Test design.

Context

Holders of the TMap NEXT® Test Engineer certificate know how tests must be prepared, specified and carried out, which techniques, infrastructure and tools can be used for this purpose, and how this fits in with the life cycle of a testing process. Besides the TMap NEXT® Test Engineer certificate EXIN also offers the TMap NEXT® Test Manager certificate.

Target group

The TMap NEXT® Test Engineer module is primarily intended for people for whom testing is a daily activity: (junior) professional testers. The module is also suitable for users, developers and managers who test information systems and software products.

Prerequisites

General knowledge in the field of system development and six months to one year of work experience in the testing field.

Examination type

Computerbased multiple-choice questions

Estimation studyload

60 hours

Practical assignments

Not applicable

Time allotted for examination

60 minutes

Examination details

Number of questions:	30
Pass mark:	65% (20 of 30)
Open book/notes:	no
Electronic equipment permitted:	no

Sample questions

To prepare for your examination you can download a sample exam at http://www.exin.com.

Training

Group size

The maximum number of course participants is 25.
(This does not count for online- or computer based training.)

Contact hours

The minimum number of contact hours for the course is 22. This number includes group assignments, exam preparation and short coffee breaks. Not included are: homework, the logistics related to the exam session, the exam session and lunch breaks.

Training provider

A list of accredited training providers may be found on EXIN's website http://www.exin.com.

2. Exam requirements

The exam requirements are specified in the exam specifications. The following table lists the topics of the module (exam requirements). The weight of the different topics in the exam is expressed as a percentage of the total.

Exam requirement	Exam specification	Weight (%)
1 Framework and importance of testing		**15**
	1.1 Structured testing	11
	1.2 The essentials of TMap	4
2 TMap® life cycle acceptance and system tests		**40**
	2.1 TMap test management phases	10
	2.2 TMap test implementation phases	30
3 Development tests		**5**
	3.1 Aspects of development testing	5
4 Test design		**40**
	4.1 Coverage types and test design techniques	40
Total		**100**

Exam specifications

1. Framework and importance of testing (15%)

1.1 Structured testing

The candidate is familiar with the various test terms.

The candidate can:

1.1.1 describe testing and evaluation and what testing produces

1.1.2 describe the test concepts and the advantages of a structured testing approach

1.1.3 name the test image points of focus and the characteristics that a tester must possess.

1.2 The essentials of TMap

The candidate is familiar with the four essentials of TMap.

The candidate can:

1.2.1 enumerate the features of the business-driven test management approach

1.2.2 describe the TMap processes

1.2.3 quote examples from the toolbox

1.2.4 name adaptivity properties.

2. TMap® life cycle acceptance and system tests (40%)

2.1 TMap test management phases

The candidate understands the Planning, Control and Setting up and maintaining infrastructure phases.

The candidate can:

2.1.1 explain the Planning, Control and Setting up and maintaining infrastructure phases

2.1.2 name and explain quality characteristics and test types

2.1.3 describe a test environment

2.1.4 name examples of types of test tools

2.1.5 explain the advantages of using test tools.

2.2 TMap test implementation phases

The candidate understands the Preparation, Specification, Execution and Completion phases.

The candidate can:

2.2.1 give examples of activities and objectives in the Preparation, Specification, Execution and Completion phases

2.2.2 explain the sequence of the activities, and their dependencies, in the Preparation, Specification, Execution and Completion phases

2.2.3 carry out a testability review on the test basis and process and report on the results of the review

2.2.4 explain the importance and use of central starting points

2.2.5 explain the various testing methods

2.2.6 find a defect and draw up a defect report.

3. Development tests (5%)

3.1 Aspects of development testing

The candidate has knowledge of development testing.

The candidate can:

3.1.1 describe the development test types

3.1.2 describe the characteristics, context and advantages and disadvantages of improved development testing.

4. Test design (40%)

4.1 Coverage types and test design techniques

The candidate understands the coverage types and test design techniques and can apply them.

The candidate can:

4.1.1 explain the essential concepts associated with test design

4.1.2 explain and apply the various coverage types

4.1.3 explain and apply the various test design techniques

4.1.4 create test cases based on a given test basis and a given coverage type and/or test design technique.

Comment

The emphasis in the module TMap NEXT® Test Engineer is on the 'what' and the 'why' of structured testing and on preparing and executing the tests.
In this module, the coordination and management tasks, such as creating a test plan and estimating the effort, are not evaluated. This is part of the TMap NEXT® Test Manager module.

3. List of basic concepts

This list contains the terms with which candidates should be familiar. Terms are listed in alphabetical order.

1. Framework and importance of testing

1.1 Structured testing

- acceptance test
- corrective measures
- detective measures
- development tests
- dynamic explicit testing
- dynamic implicit testing
- evaluation
- Key Performance Indicators (KPIs)
- preventive measures
- quality
- quality assurance
- quality characteristics
- quality management
- regression
- regression test
- requirements
- static testing
- structured testing
- system test
- test basis
- test benefits
- test level
- test image
- testing method
- test type
- test object
- test professional
- testing
- unstructured testing
- V-model

1.2 The essentials of TMap®

- acceptance testing
- adaptive
- business case
- business driven
- business driven test management (BDTM)
- characteristic
- completion phase
- control phase
- control phase of the total test process
- costs

- critical path
- defects
- test design
- development testing
- essentials
- execution phase
- infrastructure
- inspection
- IT governance
- life cycle model
- master test plan (MTP)
- metrics
- object parts
- organization
- permanent test organization
- planning phase
- planning phase of the total test process
- preparation phase
- product risk
- product risk analysis (PRA)
- result
- review
- risk
- risk class
- setting up and maintaining infrastructure phase
- specification phase
- structured testing process
- system testing
- techniques
- test objective
- test environment
- test estimation
- test policy
- test professional
- test roles
- test strategy
- test tools
- time
- toolbox
- walkthrough
- workstations

2. TMap® life cycle acceptance and system testing

2.1 TMap® test management phases

- acceptance testing
- accuracy
- business driven test management (BDTM)
- completeness
- connectivity
- continuity
- control phase

- data controllability
- degradation factor
- effectivity
- efficiency
- fail-over possibilities
- flexibility
- functionality
- heuristic evaluation
- information security
- infrastructure
- iteration model
- load
- load model
- maintainability
- manageability
- measurement plan
- performance
- planning phase
- portability
- quality attribute
- recoverability
- regression
- regression testing
- release advice
- reliability
- reusability
- risk
- robustness
- security
- setting up and maintaining infrastructure phase
- stress
- suitability
- (suitability of) infrastructure
- system testing
- test environment
- test infrastructure coordinator
- test manager
- test plan
- test tool
- test type
- testability
- tools for executing the test
- tools for debugging and analyzing the code
- tools for designing the test
- tools for planning and controlling the test
- usability
- user-friendliness
- workstations

2.2 TMap® test implementation phases

- acceptance testing
- alternative test basis
- central starting point
- checklist
- completion phase
- defect
- defects administration
- defect report
- dynamic explicit testing
- dynamic implicit testing
- evaluating the test process
- evaluation
- execution phase
- logical test case
- physical test case
- preparation phase
- preserving the testware
- pretest
- priority
- prototype
- requirements
- retests
- severity
- specification phase
- starting point
- static testing
- system testing
- test basis
- test object intake
- test level
- test script
- test situation
- test unit
- testability
- testability review
- testability review report
- testware

3 Development testing

3.1 Aspects of development testing

- build & deploy scripts
- Continuous Integration
- development testing
- DSDM
- eXtreme Programming (XP)
- Pair Programming
- RUP
- SCRUM
- SDM
- (system) development method: agile, waterfall, incremental, iterative

- Test Driven Development (TDD)
- test harness
- unit integration test (UIT)
- unit test (UT)

4 Test design

4.1 Coverage types and test design techniques

- action
- boundary value analysis
- checklist
- condition
- condition coverage
- condition/decision coverage
- coverage
- coverage ratio
- coverage type
- CRUD
- data combination test (DCoT)
- Data Cycle Test (DCyT)
- decision coverage
- decision points
- Decision Table Test (DTT)
- Elementary Comparison Test (ECT)
- equivalence classes
- Error Guessing (EG)
- Exploratory Testing (ET)
- initial situation
- load profiles
- logical test case
- modified condition/decision coverage
- multiple condition coverage
- neutral value
- n-wise testing
- operator
- operational profiles
- orthogonal arrays
- pairwise testing
- paths
- physical test case
- predicted result
- Process Cycle Test (PCT)
- pseudo-code
- quality characteristic
- Real-Life Test (RLT)
- risk analysis
- right paths/fault paths
- Semantic Test (SEM)
- starting point
- Syntactic Test (SYN)
- test basis
- test case

- test depth level N
- test design technique
- test script
- test situation
- test strategy
- test type
- Use Case Test (UCT)

Comment

For each exam requirement, the concepts are arranged alphabetically. The glossary is not exhaustive (not even for each exam requirement), but these are the concepts that can in any case be tested during the exam.
A concept can be tested in several exam specifications, but is included in the glossary for the exam specification in which the concept is paid the most attention in the literature.
For concepts whose abbreviation and full name are included in the glossary, both can be examined separately.

4. Literature

Exam literature

A Koomen, T., Aalst, L. van der, Broekman, B., Vroon, M.
TMap® Next, for result-driven testing
UTN Publishers, 's Hertogenbosch, The Netherlands, 2007
ISBN 9789072194800

Overview of the literature

Exam specification	Literature [a]
1.1	**A:** Chapter 2 §8.6.1 to §8.6.3 inclusive
1.2	**A:** Chapter 3
2.1	**A:** §2.1, §2.3.5 §3.2.2 §6.1 to §6.4[b] inclusive §8.4.2, §8.5.1 to 8.5.4 inclusive Chapter 10
2.2	**A:** §2.3.2, §2.3.3 §3.2.2 §6.5 to §6.8 inclusive §12.1 to §12.3 inclusive
3.1	**A:** §2.3.4 §3.2.3 §7.1 to §7.2.6 inclusive
4.1.	**A:** §6.6.1 Chapter 14[c]

Comment

[a] **No** questions will be asked about the contents of framed text blocks, **except for** framed text blocks that contain definitions and the framed text blocks in chapter 14. The contents of these framed text blocks **are** part of the exam.
[b] Only the paragraphs 6.2, 6.3 and 6.4 are part of the exam. Their subparagraphs (6.2.x, 6.3.x and 6.4.x) are **not** part of the exam.
[c] **No** questions will be asked about the derivation of orthogonal arrays (14.3.5).

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