

# **TMMi Professional Sample Exam Paper B**

**Version 1.3**

**Produced by the TMMi Foundation**

**Editors:** Matthias Rasking / Erik van Veenendaal

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## Contributors

Jan Jaap Cannegieter (The Netherlands)  
Adrian Howes (UK)  
Tang Miao Miao (China)  
Alfonsina Morgavi (Argentina)  
Ella Shang (China)  
Matthias Rasking (Germany)  
Erik van Veenendaal (Bonaire)

## Revisions

This section summarizes the key revisions between different versions of this document.

This section is provided for information only.

| Version | Description of changes                                                                                                                                                                                                                                                                                                          |
|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| V1.0    | Second full sample for new TMMi Professional syllabus (V2020), including questions for new section of the TMMi Professional syllabus "TMMi in an Agile context".                                                                                                                                                                |
| V1.1    | Incorrect answer keys for questions 38 and 40 updated.                                                                                                                                                                                                                                                                          |
| V1.2    | Update in the context of release TMMi Model R1.3 (2022) and TMMi Professional syllabus 2.1 (2022). Question 4 has been updated to align with CMMI version 2, especially answers A and B have been changed. Question 14 has been fully updated to the new practice areas defined in CMMI version 2, answer D has been rewritten. |
| V1.2a   | Various editorial updates.                                                                                                                                                                                                                                                                                                      |
| V1.3    | Question 36 (including justification) updated to improve compliance with TAMAR. Learning objective for Question 32 corrected. Also in question 32 the process area number for Peer Reviews corrected.                                                                                                                           |

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## Sample Exam Paper B

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### Part 1 “Context of Test Improvement”

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*Learning Objective 1.1 “Provide examples of the typical business reasons for test improvement”*

**1. Which of the following is a typical business reason for starting a test improvement program?**

Number of correct answers: **1**

- A) Implement risk-based testing
- B) Achieve a higher level of product reliability
- C) Increase market share
- D) Provide a career path for test professionals

*Learning Objective 1.2 “Understand the different aspects of testing that can be improved”*

**2. Which test level can NOT be improved using the TMMi model?**

Number of correct answers: **1**

- A) Static testing, e.g., reviews
- B) Component testing
- C) User acceptance testing
- D) All levels of testing can be within the scope of a TMMi based test process improvement programme.

*Learning Objective 1.3 “Summarize typical costs and benefits of the TMMi”*

**3. What is an example of an indirect benefit for a test improvement program?**

Number of correct answers: **1**

- A) Improvement in staff motivation
- B) Shortened lead-time of test execution phase
- C) Higher levels of defect detection
- D) Improved (more reliable) test estimations

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**Part 2 “Introduction to the TMMi model”**

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*Learning Objective 2.2 “Understand the aspects of the CMMI V2 model with testing-specific relevance”*

**4. Which of the following statements regarding testing related aspects of the CMMI is FALSE?**

Number of correct answers: **1**

- A) CMMI version 2 has a dedicated process area for dynamic testing: Verification & Validation.
- B) CMMI version 2 has a dedicated process area for static testing: Peer Reviews.
- C) Specific supporting practice areas, e.g., Configuration Management, are also relevant to testing.
- D) Testing maturity within the CMMI is defined at various levels.

*Learning Objective 2.4 “Compare the continuous and staged representation including their strengths and weaknesses”*

**5. Improvement models can have a staged and/or continuous representation. The TMMi has been developed as a staged model.**

**Which of the following statements regarding a staged improvement model is TRUE?**

Number of correct answers: **1**

- A) An organization can select process areas for improvement based on business objectives.
- B) A staged representation uses a predefined set of process areas to define an improvement path for an organization.
- C) A staged representation has no fixed set of levels to proceed through.
- D) Practical experiences have shown that a staged representation is more difficult to use than a continuous representation due to its flexibility.

*Learning Objective 2.6 “Understand the evolution of the testing process as described by Gelperin and Hetzel”*

**6. The evolutionary testing model of Gelperin and Hetzel has served as a foundation for historical level differentiation in the TMMi. The evolutionary testing model describes a number of test phases.**

**Which of the following phases of the evolutionary testing model is associated with the highest maturity level of the TMMi?**

Number of correct answers: **1**

- A) Debugging-oriented phase
- B) Prevention-oriented phase
- C) Evaluation-oriented phase
- D) Demonstration-oriented phase

*Learning Objective 2.7 “Describe the scope of the TMMi model, including the fact that TMMi is intended to be lifecycle independent”*

**7. Which of the following statements is a correct description of the scope of the TMMi model?**

Number of correct answers: **1**

- A) The TMMi model is specifically targeted towards higher test levels (e.g., system test and acceptance test).
- B) The TMMi model is specifically targeted at dynamic testing and does NOT address static testing.
- C) The TMMi model is intended to support testing activities and test process improvement in both the systems engineering and software engineering discipline.
- D) The TMMi model includes requirements for both formal and informal TMMi assessments.

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**Part 3 “TMMi Maturity Levels”**

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*Learning Objective 3.1 “Summarize the TMMi maturity levels and Process Areas”*

**8. Which of the following process areas is a TMMi level 3 process area?**

Number of correct answers: **1**

- A) Test Design and Execution
- B) Quality Control
- C) Non-Functional Testing
- D) Advanced Reviews

*Learning Objective 3.1 “Summarize the TMMi maturity levels and Process Areas”*

**9. To which TMMi level do the process areas Test Organization and Test Training Program belong?**

Number of correct answers: **1**

- A) TMMi level 2 Managed
- B) TMMi level 3 Defined
- C) TMMi level 4 Measured
- D) TMMi level 5 Optimization

*Learning Objective 3.2 “Explain the TMMi maturity levels”*

**10. Study the following description:**

**“Testing is a thoroughly defined, well-founded and measurable process. Testing is perceived as evaluation; it consists of all lifecycle activities concerned with checking products and related work products.”**

**To which TMMi maturity level does this description apply?**

Number of correct answers: **1**

- A) TMMi Level 2 Managed
- B) TMMi Level 3 Defined
- C) TMMi Level 4 Measured
- D) TMMi Level 5 Optimization



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**Part 4 “Structure of the TMMi”**

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*Learning objective 4.1 “Summarize the components of the TMMi model”*

**11. Which of the following statements best describes the difference between a Specific Goal and a Generic Goal in the TMMi model?**

Number of correct answers: **1**

- A) A Specific Goal is applicable to multiple process areas, whereas a Generic Goal is applicable to one process area only.
- B) A Generic Goal is applicable to multiple process areas, whereas a Specific Goal is applicable to one process area only.
- C) A Specific Goal is the institutionalization of a Generic Goal.
- D) Generic Goals are re-used from the CMMI, whereas the Specific Goals are related to their implementation specifically for testing.

*Learning Objective 4.2 “Explain the difference between a required, expected and informative component”*

**12. Which type of TMMi model component is described hereafter?**

**“The components guide those who implement improvements or perform assessments. Either the practices as described or acceptable alternatives to the practices must be present in the processes of the organization before goals can be considered satisfied.”**

Number of correct answers: **1**

- A) Required components
- B) Expected components
- C) Informative components
- D) Alternative components

*Learning Objective 4.3 “Categorize the components of the TMMi model by type (required, expected, informative)”*

**13. TMMi distinguishes between required, expected and informative components.**

**Which of the following is an example of an informative TMMi model component?**

Number of correct answers: **1**

- A) Specific Practices
- B) Sub-practices
- C) Generic Practices
- D) Generic Goals

*Learning objective 4.7 “Summarize the relationship between TMMi and CMMI (V2)”*

**14. Which of the following statements BEST describes a relationship between the TMMi model and the CMMI version 2 practice area Verification and Validation?**

Number of correct answers: **1**

- A) The CMMI version 2 practice area Verification & Validation is a supporting practice area for the testing processes within the TMMi.
- B) The CMMI version 2 practice area Verification & Validation is a practice area that should be addressed in parallel with the testing processes within the TMMi.
- C) The TMMi process areas provide support and a more detailed description of what is required to establish a Verification & Validation process.
- D) Being fully achieved for the TMMi level 2 process areas Test Planning and Test Monitoring and Control also ensures full compliance to the requirements of CMMI practice area Verification & Validation.

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## **Part 5 “TMMi Model”**

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*Learning Objective 5.1 “Summarize the TMMi level 2 Process Areas and Specific Goals”*

**15. An organization is facing too many defects occurring during production. As a consequence, an important test improvement goal for the next improvement cycle is to improve the quality (effectiveness) of the test cases.**

**Which of the following specific practices needs to be addressed, in the context of the improvement goal, as part of SG 1 “Perform Test Analysis and Design using Test Design Techniques” of the Test Design and Execution process area?**

Number of correct answers: **1**

- A) Develop and Prioritize Test Procedures
- B) Specify Intake Test Procedure
- C) Identify and Prioritize Test Charters
- D) Identify and Prioritize Test Conditions

*Learning Objective 5.1 “Summarize the TMMi level 2 Process Areas and Specific Goals”*

**16. A test process assessment against TMMi levels 2 and 3 has been performed on an international outsourcing software organization. Although many practices, as required by the TMMi model, are already in place, projects suffer from poor test estimations.**

**Which of the following process areas would need specific attention to address the above-mentioned shortcoming?**

Number of correct answers: **1**

- A) Test Techniques
- B) Test Planning
- C) Test Design and Execution
- D) Test Training Program

*Learning Objective 5.1 “Summarize the TMMi level 2 Process Areas and Specific Goals”*

**17. A test process assessment has been performed on an international multi-site software organization. Although many practices, as required by the TMMi model, are already in place, the organization is missing a clear direction and vision regarding test process improvement.**

**Which of the following process areas would need specific attention addressing the above-mentioned shortcoming?**

Number of correct answers: **1**

- A) Test Policy and Strategy
- B) Test Planning
- C) Test Process Optimization
- D) Product Quality Evaluation

*Learning Objective 5.2 “Recognize the Specific Practices of the TMMi Level 2 Process Areas”*

**18. A test organization is at the initial TMMi level and is trying to implement the TMMi level 2 process areas. One of the improvement goals for the current year is to improve management and control of test environments.**

**Which of the following specific practices needs to be addressed as part of SG 3 “Manage and Control Test Environments” of the Test Environment process area?**

Number of correct answers: **1**

- A) Perform test environment intake test
- B) Analyze the test environment requirements
- C) Create generic test data
- D) Coordinate the availability and usage of test environments

*Learning objective 5.3 “Summarize the TMMi level 3 Process Areas and Specific Goals”*

**19. In a TMMi assessment, one of the shortcomings stated was the lack of professional testers. “Test functions and accompanying test career paths to be defined” is an improvement action recommended by the assessors.**

**Which TMMi process area addresses specific goals and specific practices for defining test functions and establishing test career paths?**

Number of correct answers: **1**

- A) Test Training Program
- B) Test Policy and Strategy
- C) Test Organization
- D) Test Planning

*Learning Objective 5.3 “Summarize the TMMi level 3 Process Areas and Specific Goals”*

**20. A test process assessment has been performed on a company developing systems for the medical industry. Their systems are classified as safety critical. One of the shortcomings identified during the assessment is related to reliability testing. Although reliability was identified by the business as a critical issue, no formal approach and test techniques are being used for reliability testing.**

**Which of the following process areas would need specific attention to address the above-mentioned shortcoming?**

Number of correct answers: **1**

- A) Test Design and Execution
- B) Test Environment
- C) Non-Functional Testing
- D) Product Quality Evaluation

*Learning Objective 5.3 “Summarize the TMMi level 3 Process Areas and Specific Goals”*

**21. Which of the following is NOT a specific goal for the process area Test Organization?**

Number of correct answers: **1**

- A) Provide Test Training
- B) Establish Test Functions for Test Specialists
- C) Determine, Plan and Implement Test Process Improvements
- D) Establish Test Career Paths

*Learning Objective 5.4 “Recognize the specific practices of the TMMi level 3 process areas (Test Organization, Test Training Program, Test Lifecycle and Integration, Non-Functional Testing and Peer Reviews)”*

**22. Test Planning is defined as one of the process areas at TMMi level 2. It introduces practices such as product risk assessment and defining a test approach for the project. Process areas at higher TMMi levels build on these practices and also address product risk assessments and/or defining a test approach.**

**Which of the following TMMi level 3 process areas are most strongly built on the practices and experiences of Test Planning at TMMi level 2?**

- i) **Test Organization**
- ii) **Test Lifecycle and Integration**
- iii) **Non-Functional Testing**
- iv) **Peer Reviews**

Number of correct answers: **1**

- A) i and iv
- B) iii and iv
- C) ii and iii
- D) i and ii

*Learning objective 5.4 “Recognize the specific practices of the TMMi level 3 process areas (Test Organization, Test Training Program, Test Lifecycle and Integration, Non-Functional Testing and Peer Reviews)”*

**23. An important practice for testers is to be involved as early as a possible. One way to be involved early is by reviewing the test basis documents, for example requirements. TMMi has identified the specific practice “Testers review test basis documents”.**

**To which process area does the specific practice “Testers review test basis documents” belong?**

Number of correct answers: **1**

- A) Test Planning
- B) Test Design and Execution
- C) Peer Reviews
- D) Advanced Reviews

*Learning Objective 5.5 “Summarize the TMMi level 4 process areas (Test Measurement, Product Quality Evaluation, Advanced Reviews) and specific goals”*

**24. Consider the following specific goal “Measurable Project Goals for Product Quality and their Priorities are Established”.**

**To which of the following process areas does this specific goal belong?**

Number of correct answers: **1**

- A) Test Measurement
- B) Product Quality Evaluation

- C) Advanced Reviews
- D) Test Policy and Strategy

*Learning Objective 5.6 “Recognize the Specific Practices of the TMMi level 4 Process Areas”*

**25. Advanced Reviews is a TMMi level 4 process area.**

**To which specific goal of the Advanced Reviews process area does the specific practice “Revise the product risks as appropriate” belong?**

Number of correct answers: **1**

- A) SG 1 Coordinate the Peer Review Approach with the Dynamic Test Approach
- B) SG 2 Measure Product Quality Early in the Lifecycle by Means of Peer Reviews
- C) SG 3 Adjust the Test Approach Based on Review Results Early in the Lifecycle
- D) The specific practice “Revise the product risks as appropriate” is not related to a specific goal of the Advanced Reviews process area

*Learning Objective 5.7 “Summarize the TMMi level 5 Process Areas and Specific Goals”*

**26. The three TMMi level 5 process areas, Defect Prevention, Quality Control and Test Process Optimization, all provide support for continuous process improvement.**

**Which of these process areas is specifically aimed at identifying new testing technologies that may be appropriate and to transition them into the organization?**

Number of correct answers: **1**

- A) Defect Prevention
- B) Quality Control
- C) Test Process Optimization
- D) All three level 5 process areas specifically address new testing technologies

*Learning Objective 5.7 “Summarize the TMMi level 5 Process Areas and Specific Goals”*

**27. An organization already at TMMi level 4 is now trying to also achieve TMMi level 5 compliance.**

**Which of the following process areas is within the scope of this specific test improvement programme?**

Number of correct answers: **1**

- A) Product Quality Evaluation
- B) Quality Control
- C) Advanced Reviews
- D) Test Measurement

*Learning Objective 5.8 “Recognize the Specific Practices of the TMMi Level 5 Process Areas”*

**28. A test organization is at TMMi level 4 and is trying to implement the TMMi level 5 process areas. One of the improvement goals for the current year is to implement a Defect Prevention program.**

**Which of the following specific practices needs to be addressed as part of the Defect Prevention process area?**

Number of correct answers: **1**

- A) Establish test process performance measures, part of the specific goal Establish a Statistically Controlled Test Process.
- B) Propose solutions to eliminate common causes, part of the specific goal Prioritize and Define Actions to Systematically Eliminate Root Causes of Defects.
- C) Pilot test process improvement proposals, part of the specific goal Select Test Improvements.
- D) Manage the deployment, part of the specific goal Deploy Test Improvements.



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## **Part 6 “TMMi in an Agile context”**

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*Learning Objective 6.1 “Understand how TMMi can be used in an Agile context, and how the two can complement each other”*

### **29. How does TMMi support test process improvement in an Agile context?**

Number of correct answers: **1**

- A) By imposing a set of required testing practices to an Agile project.
- B) By using TMMi as a reminder of critical testing practices that are often not defined or forgotten in Agile development methodologies.
- C) By having a focus on defining lean test processes with an Agile mindset.
- D) By using only the test engineering related process areas, and omitting anything that is related to improving at an organizational level.

*Learning Objective 6.2 “Understand the difference doing test process improvement in an Agile context compared to doing this in a traditional context”*

### **30. Which of the following statements is TRUE regarding test process improvement in an Agile context?**

Number of correct answers: **1**

- A) The improvement cycle frequency is typically lower compared to the frequency in a traditional environment.
- B) The focus is on doing test process improvement at an organizational level.
- C) Since all team members typically perform some testing tasks in an Agile project, test improvement ideas can indeed come from any team member not just the testers.
- D) The level of documentation is typically high, thereby allowing for many opportunities for improving the test documentation.

*Learning Objective 6.3 “Explain with examples how the TMMi level 2 process areas, goals and practices should be interpreted and can be used in an Agile context”*

### **31. Which of the following is an Agile practice that can be applied as a way to establish a test strategy (SG2) within the Test Policy and Strategy process area?**

Number of correct answers: **1**

- A) Testing quadrants
- B) Velocity
- C) Release planning
- D) Definition-of-done

*Learning Objective 6.4 “Explain with examples how the TMMi level 2 process areas, goals and practices should be interpreted and can be used in an Agile context”*

**32. Agile projects achieve the intent of process area 3.5 Peer Reviews by conducting continual, less-formal, peer reviews throughout development.**

**Which of the following is NOT an example of peer reviews typically performed within Agile projects?**

Number of correct answers: **1**

- A) Having refinement / grooming sessions on the specifications (e.g., user stories) with the team and business stakeholders on a regular basis throughout an iteration.
- B) Conducting sprint retrospectives every 2-3 iterations to identify process improvement opportunities.
- C) Daily meetings with other team members to discuss openly and provide feedback on the work products (e.g., code or tests) being developed.
- D) The demonstration of products early and often to customers, at least at the end of an iteration during the iteration review.

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**Part 7 “TMMi Assessments”**

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*Learning Objective 7.1 “Explain the role of assessments with the overall improvement process”*

**33. Which of the following statements regarding formal and/or informal assessments is FALSE?**

Number of correct answers: **1**

- A) Formal TMMi assessments must be led by an accredited TMMi lead assessor.
- B) Both formal and informal TMMi assessments will provide an official result on test process maturity.
- C) Informal assessments require only one type of evidence.
- D) Both formal and informal assessments will provide a list of strengths and weaknesses of an organization against the TMMi model.

*Learning Objective 7.2 “Compare informal assessments to formal assessments”*

**34. Which of the following are valid reasons to perform a TMMi assessment?**

- i. Evaluate the performance of testers**
- ii. Find areas that need to be improved**
- iii. Determine which accomplishments have been made**
- iv. As a basis to become formally TMMi certified**

Number of correct answers: **1**

- A) i, ii and iii
- B) i, ii and iv
- C) i, iii and iv
- D) ii, iii and iv

*Learning Objective 7.2 “Compare informal assessments to formal assessments”*

**35. Consider the following characteristics of an assessment:**

- **the assessment is performed by an accredited TMMi assessor.**
- **only interviews are used for collecting evidence.**

**To which type of assessment do these characteristics relate?**

Number of correct answers: **1**

- A) Informal TMMi assessments
- B) Formal TMMi assessments
- C) Both formal and informal TMMi assessments
- D) Neither formal nor informal TMMi assessments based on TAMAR

*Learning Objective 7.3 “Summarize the generic assessment process”*

**36. During a TMMi assessment the percentage of process achievement for the Specific Goal 1 Perform a Product Risk Assessment of the Test Planning process area has been determined at 40%.**

**Which of the following compliance ratings would you assign to Specific Goal 1 Perform a Product Risk Assessment?**

Number of correct answers: **1**

- A) Not Achieved
- B) Partly Achieved
- C) Largely Achieved
- D) Fully Achieved

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**Part 8 “Implementing TMMi”**

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*Learning Objective 8.1 “Summarize the activities of the Initiating phase of the improvement framework”*

**37. Which of the following activities is an activity that will typically be performed as part of the Initiating phase of a test improvement cycle?**

Number of correct answers: **1**

- A) Analyse and Validate
- B) Plan Actions
- C) Develop Recommendations
- D) Charter Infrastructure

*Learning Objective 8.2 “Summarize the key elements of a test policy”*

**38. Which of the following is a typical element of a test policy?**

Number of correct answers: **1**

- A) Define product risks categories
- B) The quality levels to be achieved
- C) Test types to be carried out at each level
- D) Approach to regression testing

*Learning Objective 8.3 “Summarize the activities of the diagnosing phase of the improvement framework”*

**39. During the diagnosing phase a TMMi assessment is performed to determine the current maturity status of the organization.**

**Which activity is performed in addition to the assessment during the diagnosing phase?**

Number of correct answers: **1**

- A) Set Priorities
- B) Plan Actions
- C) Develop Approach
- D) Develop Recommendations

*Learning Objective 8.5 “Summarize the activities of the acting phase of the improvement framework”*

**40. Which of the following activities are part of the Acting phase of a test improvement cycle?**

- i) Set Priorities**
- ii) Create Solutions**
- iii) Plan Actions**
- iv) Pilot Solutions**

Number of correct answers: **1**

- A) i and ii
- B) i and iii
- C) ii and iv
- D) ii, iii and iv

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## Answers and Justifications

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### Part 1 “Context of Test Improvement”

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#### Question 1: B

Answer A) is incorrect, as introducing risk-based testing is typically not a reason why a business would start a test improvement program, although it may well be one of the improvements introduced.

Answer B) is the correct answer, since improving testing could well support achieving a higher level of product reliability.

Answer C) is incorrect, there most often is not a direct connection between an increase in market share and a test improvement program.

Answer D) is incorrect, providing career paths for test professionals will typically not be a business reason for starting a test improvement program.

#### Question 2: D

Answer A) is incorrect, TMMi addresses (and thus can help to improve) all test levels. More specifically, the TMMi reference model, par. 1.4.2 states “the TMMi addresses all test levels (including static testing)”.

Answer B) is incorrect, the TMMi reference model par. 1.4.2, states “With respect to dynamic testing, .... lower test level[s] (e.g., component test, integration test).... are within the scope of the TMMi.”.

Answer C) is incorrect, the TMMi reference model par. 1.4.2 states “....higher test levels (e.g., system test, acceptance test) are within the scope of the TMMi.”.

Answer D) is the correct answer, par. 1.4.2 of the TMMi reference model states that “TMMi addresses all test levels (including static testing)”, therefore all test levels can be improved using the TMMi as a process improvement model.

#### Question 3: A

Answer A) is the correct answer, increasing motivation may be an indirect result of improving processes though not a direct result of actions (unlike a dedicated program to increase personnel motivation).

Answer B) is incorrect, a shortened lead-time of test execution is a direct benefit.

Answer C) is incorrect, achieving a higher level of defect detection would be a direct benefit.

Answer D) is incorrect, more reliable test estimations would increase test predictability and would therefore be an example of a direct benefit.

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### Part 2 “Introduction to the TMMi model”

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#### Question 4: D

Answer A), True. CMMI version 2 has a dedicated dynamic testing process area: Verification & Validation.

Answer B), True. CMMI version 2 has a dedicated static testing process area: Peer Reviews.

Answer C) True. Some supporting practice areas in CMMI address quality criteria that are generically applicable throughout the organization. For example, Configuration Management and Process Quality Assurance can be used for all CMMI practice areas, but also for TMMi process areas support.

Answer D) False. Testing maturity within CMMI is not really defined at various levels. Only two practice areas in CMMI address specific testing aspects (Verification & Validation and Peer Reviews). The concept of testing maturity is not addressed with CMMI.

**Question 5: B**

Answer A) is incorrect, as TMMi is a staged model, an organization cannot select process areas for improvement based on business objectives.

Answer B) is correct, the TMMi has been developed as a staged model. The staged model uses predefined sets of process areas to define an improvement path for an organization.

Answer C) is incorrect, a staged model uses predefined sets of process areas (maturity levels) to define an improvement path for an organization.

Answer D) is incorrect, practical experiences have not shown that a staged representation is more difficult to use than a continuous representation. In fact, most experiences show the opposite.

**Question 6: B**

Answer A) is incorrect, the first phase “Debugging-oriented phase” in Gelperin and Hetzel’s evolutionary testing model is similar to TMMi level 1 Initial. In this phase, testing is perceived as a debugging activity.

Answer B) is correct, the “Prevention-oriented” phase can be compared to TMMi level 5 Optimization, the highest maturity level in TMMi. During this phase, testing is a completely defined and controlled process. The focus of testing is no longer on finding defects, but rather on the prevention of defects, in both the product and in the process.

Answer C) is incorrect, the “Evaluation-oriented” phase can be linked to elements from TMMi level 3 Defined and partly to TMMi level 4 Measured. During this phase, testing is fully integrated in the software development lifecycle and the objective of testing is providing (quantitative) visibility into the quality of the product.

Answer D) is incorrect, the “Demonstration-oriented” phase has a strong correlation to TMMi level 2 Managed. In the “Demonstration-oriented” phase, testing is separated from debugging, and testing planning and test design techniques are introduced in the organization.

**Question 7: C**

Answer A) is incorrect, both lower test levels (e.g., component test, integration test) and higher test levels (e.g., system test, acceptance test) are within the scope of the TMMi.

Answer B) is incorrect, the TMMi addresses all test levels (including static testing) and aspects of structured testing.

Answer C) is correct, the TMMi is intended to support testing activities and test process improvement in both the systems engineering and software engineering disciplines.

Answer D) is incorrect, requirements for both formal and informal TMMi assessments are not stated in TMMi model. They are defined in the TMMi Assessment Method Application Requirements [TAMAR].

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**Part 3 “TMMi Maturity Levels”**

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**Question 8: C**

Answer C) is the correct answer according to the TMMi Framework.

Test Design and Execution is a TMMi level 2 process area, Quality Control is a TMMi level 5 process area, Advanced Reviews is a TMMi level 4 process area, and only Non-Functional Testing is a level 3 process area.

**Question 9: B**

Answer B) is the correct answer. Both Test Organization and Test Training Program are process areas at TMMi level 3.



**Question 10: C**

Answer C) is correct. The description is extracted from the introduction paragraph describing TMMi Level 4. This description specifically relates to the practices within the process areas Test Measurement and Advanced Reviews.

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**Part 4 “Structure of the TMMi”**

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**Question 11: B**

A) is incorrect, a Specific Goal is applicable to one process area only, whereas a Generic Goal is applicable to multiple process areas.

B) is correct, Generic Goals are indeed applicable to multiple process areas, whereas a Specific Goal is applicable to one process area only.

C) is incorrect, Generic Goals and their practices are there to ensure the institutionalization of Specific Goals.

D) is incorrect, the concept of Generic Goals is indeed re-used from the CMMI, however they are defined (slightly) differently and explicitly documented at each process area.

**Question 12: B**

This relates to expected components, especially the part “either the practices as described or *acceptable alternatives to the practices* must be present ....” has the answer hidden in it.

Answer D) is incorrect as there are no components under the name of Alternative Components in the TMMi framework.

**Question 13: B**

A) is incorrect, specific practices are an expected component.

B) is correct, sub-practices indeed are an informative component.

C) is incorrect, generic practices are an expected component.

D) is incorrect, generic goals are a required component.

**Question 14: C**

Answer A) is incorrect, it is vice-versa, the TMMi process areas provide support for the implementation of the CMMI practice areas Verification & Validation.

Answer B) is incorrect, TMMi can be used independently of CMMI, there is no need to also address the CMMI practice area Verification & Validation in parallel with the testing processes within the TMMi.

Answer C) is correct, indeed the TMMi process areas provide support and a more detailed description of what is required to establish a Verification & Validation process. Within CMMI the testing practice area Verification & Validation only addresses testing practices at a high level.

Answer D) is incorrect, being fully achieved for the TMMi level 2 process areas Test Planning and Test Monitoring and Control does not provide full compliance for Verification & Validation. At least the practices from Test Design and Execution are needed in addition.

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**Part 5 “TMMi Model”**

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**Question 15: D**

Answer A) is incorrect, test procedures are part of Specific Goal 2 “Perform Test Implementation” once Test Analysis and Design has been completed.

Answer B) is incorrect, “Specify intake test procedure” is part of the Specific Goal 2 “Perform Test Implementation”. The intake test (sometimes called smoke test) is used to decide at the beginning of test execution whether the test object is ready for detailed and further testing.

Answer C) is incorrect, there is no specific practice under this name, although test charters could be used with Agile testing instead of detailed test conditions and test designs. They largely serve the same intent.

Answer D) is correct, identifying and prioritizing test conditions is an important part of making test cases effective.

**Question 16: B**

Answer A) is incorrect, Test Techniques is not a defined process area within TMMi.

Answer B) is correct, Establish Test Estimates is a specific goal within the Test Planning process area.

Answer C) is incorrect, this process area covers the analysis, design and execution of test cases.

Answer D) is incorrect, while test estimation practices should be part of Test Training Program, the procedures themselves are being established within the Test Planning process area.

**Question 17: A**

Answer A) is correct, one of the objectives of Test Policy and Strategy is to develop a test policy. Part of the test policy is the definition of the organizational approach to and objectives of test process improvement.

Answer B) is incorrect, the objective of Test Planning is to define a test approach based on risks.

Answer C) is incorrect, the objective of Test Process Optimization is to continuously improve testing processes in the organization and to identify new testing technologies that may be appropriate.

Answer D) is incorrect, the objective of Product Quality Evaluation is to develop a quantitative understanding of the quality of the products, and thereby supporting the achievement of projects’ specific product quality goals.

**Question 18: D**

Answer A) is incorrect, perform test environment intake test is part of SG2 Perform Test Environment Implementation.

Answer B) is incorrect, analyze the test environment requirements is part of SG1 Develop Test Environment Requirements.

Answer C) is incorrect, create generic test data is part of SG2 Perform Test Environment Implementation.

Answer D) is correct, this specific practice is part of SG3 of the Test Environment process area.

**Question 19: C**

Answer A) is incorrect, while a Test Training Program can support a career path by organizing necessary training, first the functions and their respective career paths need to be defined.

Answer B) is incorrect, while the test functions can be outlined as part of Test Policy and Strategy, the full development of functions and career paths is a process area at TMMi maturity level 3.

Answer C) is correct, the Test Organization process area specifically addresses establishing test functions for test specialists and test career paths.

Answer D) is incorrect, Test Planning does not cover defining test functions and career paths.

**Question 20: C**

Answer A) is incorrect, while effective test design is needed also for reliability testing, the Test Design and Execution process area focuses on functional testing.

Answer B) is incorrect, while appropriate test environments will be needed to perform reliability testing, first the product risks in terms of reliability need to be assessed in order to understand the requirements for the test environment.

Answer C) is correct, reliability testing is part of non-functional testing and a non-functional product risk assessment should be conducted as a starting point for reliability testing.

Answer D) is incorrect, this focuses on establishing a quantitative understanding of product quality, including reliability. This process area will build on the experiences and practices of Non-functional Testing at TMMi level 3.

**Question 21: A**

Answer A) is the correct answer, providing necessary test training is a specific goal within the Test Training Program process area.

Answers B), C) and D) are all incorrect, as all are specific goals within the Test Organization process area.

**Question 22: C**

Answer A) is incorrect - Test Organization (i) and Peer Reviews (iv) are not built upon the practices and experiences of Test Planning in level 2.

Answer B) is incorrect - Non-Functional Testing (iii) is correct, specific practices are available that have a link to similar practices in Test Planning, but Peer Reviews (iv) is not correct. The process area Peer Reviews is not built upon the practices of Test Planning.

Answer C) is correct - ii and iii are correct. Test Lifecycle and Integration (ii) is concerned with master test planning and this is strongly built on the practices and experiences of Test Planning. The purpose of Non-Functional Testing (iii) is to improve test process capability to include non-functional testing during test planning, test design and execution. In notes of the process area Non-Functional Testing the link with Test Planning is explicitly mentioned.

D) is incorrect - i is not correct, Test Organization (i) is not built on the practices and experiences of Test Planning, iii is correct Non-functional Testing is built upon the practices and experiences of the Test Planning process area.

**Question 23: C**

Answer A) is incorrect. The purpose of the process area Test Planning is to define a test approach based on defined risks.

Answer B) is incorrect. The purpose of the process area Test Design and Execution is to improve the test process capability by establishing test design specifications, using test design techniques and performing a structured test execution process and managing incidents to closure.

Answer C) is correct, SG2 Perform Peer Reviews of the Peer Reviews process area addresses the specific practice "Testers review test basis documents" (SP2.2).

Answer D) is incorrect. The purpose of the process area Advanced Reviews is to measure product quality early in the lifecycle.

**Question 24: B**

Answer B) is correct, Measurable Project Goals for Product Quality and their Priorities are Established is specific goal SG1 of the process area Product Quality Evaluation.

**Question 25: C**

Answer A) is incorrect, SG1 covers the reviewing of work products and definition of a coordinated approach.

Answer B) is incorrect, SG2 describes the measurement guidelines and the implementation of measurements for peer reviews.

Answer C) is correct, in SG3 the test approach and product risks are adjusted based on the review results.

Answer D) is incorrect as this is a specific practice in SG3.

**Question 26: C**

Answer C) is correct, it is the purpose of the process area Test Process Optimization to continuously improve the existing testing processes used in the organization and to identify new testing technologies that may be appropriate and to transition them into the organization in an orderly manner.

**Question 27: B**

Answer A) is incorrect, Product Quality Evaluation is a process area at TMMi maturity level 4.

Answer B) is correct, Quality Control is a process area at TMMi maturity level 5.

Answer C) is incorrect, Advanced Reviews is a process area at TMMi maturity level 4.

Answer D) is incorrect, Test Measurement is a process area at TMMi maturity level 4.

**Question 28: B**

Answer A) is incorrect, this specific practice and specific goal are part of the process area Quality Control.

Answer B) is correct, this specific practice and specific goal are part of the process area Defect Prevention. It is SG2 and SP2.2.

Answer C) is incorrect, this specific practice and specific goal are part of the process area Test Process Optimization.

Answer C) is incorrect, this specific practice and specific goal are part of the process area Test Process Optimization.

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**Part 6 “TMMi in an Agile context”**

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**Question 29: B**

Answer A) is incorrect, TMMi does not impose testing practices on any organization, no matter what development lifecycle is used. Rather, ‘TMMi in the Agile world’ explains how TMMi can be used and applied beneficially in an Agile context by providing proven alternatives to traditional testing practices that could be implemented by Agile projects.

Answer B) is the correct answer, this is one of the main intentions of ‘TMMi in Agile world’ document.

Answer C) is incorrect, this is how a TMMi test process improvement project could benefit from Agile.

Answer D) is incorrect, both types of process areas are also important within an Agile context. The test engineering process areas will focus much on the activities with the teams, but other process areas will ensure institutionalization.

**Question 30: C**

Answer A) is incorrect, within projects that use Agile, improvements generally take place in frequent feedback loops, which enable test process improvements to be considered frequently. Small but frequent improvements are made. Thus, the improvement cycle frequency is higher, not lower.

Answer B) is incorrect. In the Agile context, test-related improvement decisions are often taking place in retrospective meetings, mainly focused on test improvements that will be implemented in the next iteration at an Agile team level, often not throughout the whole organization or at cross project level.

Answer C) is the correct answer. This is specifically referred to in Section 1.5 of 'TMMi in the Agile World'.

Answer D) is incorrect. In Agile context, the test and process documentation are typically more light-weight compared to a traditional project following a sequential lifecycle model.

**Question 31: A**

Answer A) is correct, test strategy in an Agile context defines on a high-level the testing to be done in the Agile teams (iteration teams); which test types, test quadrants and test levels will be performed and their approach.

Answer B) is incorrect, velocity is an estimation of team's productivity and is more related to establishing test performance indicators.

Answer C) is incorrect, release planning is mainly related to the process area Test Planning.

Answer D) is incorrect, definition-of-done is an appropriate criterion for release (sprint) completion and is therefore more applicable to the process areas Test Planning and Test Monitoring and Control.

**Question 32: B**

Answer A) is incorrect, refinement sessions of requirements (such as user stories) on a regular basis are typical peer review sessions in an Agile context.

Answer B) is correct, while sprint retrospectives are a common practice in Agile projects, their intent is not linked to a peer review of individual work products or a specific sprint result.

Answer C) is incorrect, daily meetings with teams to discuss work products are continual, less formal peer reviews for allocating solutions or achieving agreement.

Answer D) is incorrect, regular demonstrations of products to customers, as early as possible, are a type of less formal validation-oriented peer review.

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**Part 7 “TMMi Assessments”**

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**Question 33: B**

Answer A) True. Formal TMMi assessments must be led by an accredited TMMi lead assessor.

Answer B) False. Only formal TMMi assessments provide an official result on test process maturity. Informal assessments are designed as a thorough check to evaluate the current state of the test processes against TMMi, but cannot lead to an official result about the process maturity.

Answer C) True. Informal assessments require only one type of evidence.

Answer D) True. Both formal and informal assessments will provide a list of strengths and weaknesses of an organization against the TMMi model.

**Question 34: D**

A TMMi assessment focuses on the organization's test maturity level and not on individual performance of testers. TMMi assessments can be executed at various moments. For example, a test process improvement program can start with an assessment to identify the areas that need to be improved. TMMi

assessments can be used to determine which accomplishments to date have been made, and an organization can become formally TMMi certified through a TMMi formal assessment.

According to the above description, i is therefore incorrect, ii, iii and iv are valid statements, so answer D is correct.

**Question 35: A**

Formal assessments must be led by an accredited TMMi lead assessor. Both staff interviews and evidence from multiple sources are needed to conduct a formal assessment.

Informal assessments need only an accredited TMMi assessor and only one type of evidence, such as interviews.

These characteristics “The assessment is performed by an accredited TMMi assessor.” “Only interviews are used for collecting evidence.” relate to informal TMMi assessments. Answer A is correct.

**Question 36: B**

Answer A) is incorrect, the score of “Not achieved” is from 0 to 15% (inclusive).

Answer B) is correct, the score of “Partly achieved” is from 15% to 50% (inclusive).

Answer C) is incorrect, the score of “Largely achieved” is from 50% to 85% (inclusive).

Answer D) is incorrect, the score of “Fully Achieved” is from 85% to 100%.

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**Part 8 “Implementing TMMi”**

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**Question 37: D**

Answer A) is incorrect, analyse and validate is part of the Learning phase.

Answer B) is incorrect, plan actions is part of the Establishing phase.

Answer C) is incorrect, develop recommendations is part of the Diagnosing phase.

Answer D) is correct, according to IDEAL Initiating is the first phase in a test improvement cycle. During this phase the way in which the change and improvement project is executed is determined. The improvement infrastructure should also be put in place before one can start with the other phases and activities.

**Question 38: B**

Answer A) is incorrect, defining risk categories is part of Perform a Product Risk Assessment within the process area Test Planning.

Answer B) is correct, the quality levels to be achieved should be part of the test policy (also mentioned as part of the typical policy statements in the TMMi model).

Answers C) and D) are incorrect as both the test types to be carried out at each level and the approach to regression testing should be part of the organization-wide or programme wide test strategy (and thus typically not part of a test policy).

**Question 39: D**

Answer A) is incorrect, set priorities is part of the Establishing phase.

Answer B) is incorrect, plan actions is part of the Establishing phase

Answer C) is incorrect, develop approach is part of the Establishing phase.

Answer D, is correct, develop recommendations suggests a way forward in subsequent activities and is part of the Diagnosing phase.

**Question 40: C**

Answer A) is incorrect, set priorities (i) is part of the Establishing phase.

Answer B) is incorrect, set priorities (i) and plan actions (iii) are both part of the Establishing phase.

Answer C) is correct, the Acting phase is all about solutions. Both create solutions (ii) and pilot solutions (iv) are part of the Acting phase.

Answer D) is incorrect, plan actions (iii) is part of the Establishing phase.