

# **TMMi Professional Sample Exam Paper A**

**Version 3.2**

**Produced by the TMMi Foundation**

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## Revisions

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

This section is provided for information only.

Version	Description of changes
V2.0	Version 2.0 is the first full TMMi Professional sample exam paper (including justifications). Earlier versions only had 20 questions (without justifications)
V2.1	Question 6 updated, (question, answer and justification)
V2.2	Justification question 16 updated
V3.0	Updated for new TMMi Professional syllabus (V2020) with questions for agile (Q29-32), removed questions 6, 15, 22 and 37 to align with the new question distribution per syllabus. Question 8 has been updated to reflect a K1.
V3.1	Minor updates regarding numbering of LO's and numbering of Chapter headings
V3.2	With question 14, the LO number has been changed to the correct one (LO4.7). From now on labelled as sample paper A.

## Sample Exam Paper

### Part 1 “Context of Test Improvement”

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

**1. Which of the following statements is NOT a typical business reason for test improvement?**

Number of correct answers: **1**

- A) Introduce a new process improvement framework.
- B) Increase predictability of testing.
- C) Reduce the costs of failure by improving effectiveness of testing.
- D) Reduce time to market by increasing efficiency of testing activities.

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

**2. Which of the following statements is FALSE regarding TMMi improving the different aspects of testing?**

Number of correct answers: **1**

- A) TMMi focuses only on higher test levels such as system and acceptance test.
- B) TMMi addresses all four cornerstones for structured testing, namely lifecycle, techniques, infrastructure and organization.
- C) TMMi addresses all test levels including static testing.
- D) TMMi is intended to support testing activities and test process improvement in both systems and software engineering.

*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 defect detection percentage
- B) Decrease in test execution lead-time
- C) Increased personnel motivation
- D) More reliable test estimates

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

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*Learning Objective 2.1 “Summarize the structure of the CMMI process improvement model”*

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

Number of correct answers: **1**

- A) In the staged representation there is no fixed set of levels or stages to proceed through.
- B) In the continuous representation there is no fixed set of levels or stages to proceed through.
- C) An organization applying the continuous representation can select areas for improvement from different categories.
- D) CMMI has both a staged and continuous representation.

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

**5. What is the relevance of CMMI for test organizations?**

Number of correct answers: **1**

- A) CMMI is not relevant for a test organization, as CMMI only covers software development.
- B) Organizations that implement CMMI should also use TMMi for their test processes, because CMMI does not cover testing.
- C) CMMI adds value for organizations that implement TMMi because CMMI gives the organization the possibility to implement TMMi in a continuous way.
- D) At CMMI level 3 two specific process area are defined for testing, Validation and Verification.

*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 Maturity Level 1 “Initial” of the TMMi?**

Number of correct answers: **1**

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

*Learning Objective 2.7 “Describe the scope of the TMMi model”*

**7. Which of the following statements is correct?**

Number of correct answers: **1**

- A) TMMi provides an approach for test process improvement.
- B) TMMi provides a specific framework to be used as a reference model for testing in waterfall development methods.
- C) TMMi model addresses all test levels (including static testing) and aspects of structured testing for all kinds of development methods.
- D) TMMi is intended to be used solely for large organizations.

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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 4 process area?**

Number of correct answers: **1**

- A) Test Policy and Strategy
- B) Defect Prevention
- C) Test Lifecycle and Integration
- D) Advanced Reviews

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

**9. What is the correct order for the following TMMi maturity levels (from low to high maturity)?**

Number of correct answers: **1**

- A) Defined, Managed, Measured
- B) Managed, Defined, Measured
- C) Defined, Measured, Managed
- D) Managed, Measured, Defined

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

**10. Study the following description:**

**“Testing is multi-levelled: there are component, integration, system and acceptance test levels. For each identified test level there are specific testing objectives defined in the organization-wide or program-wide test strategy. The processes of testing and debugging are differentiated.”**

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

Number of correct answers: **1**

- A) Level 2
- B) Level 3
- C) Level 4
- D) Level 5



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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 is TRUE?**

Number of correct answers: **1**

- A) The maturity levels of TMMi describe detailed sub-practices for each specific goal.
- B) Each process area has exactly the same set of generic practices for generic goal 2.
- C) Specific goals can have different specific practices at different maturity levels.
- D) Sub-practices must be implemented together with the typical work products that are described for them in the TMMi model.

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

**12. Which of the following components describe what an organization must comply with to satisfy a process area?**

Number of correct answers: **1**

- A) Informative components
- B) Expected components
- C) Required components
- D) Required components and expected components together

*Learning Objective 4.4 “Recognize the Generic Practices of both Generic Goal 2 and Generic Goal 3“*

**13. Which generic practice addresses tailoring a managed process from the organization’s set of standard processes?**

Number of correct answers: **1**

- A) Monitor and control the process
- B) Objectively evaluate adherence
- C) Establish an organizational policy
- D) Establish a defined process

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

**14. Which of the following statements are TRUE?**

Number of correct answers: **1**

- A) The TMMi process area Test Planning is supported by the CMMI process areas Project Planning, Requirements Management and Risk Management.
- B) Practices within Specific Goal 2 (Perform Peer Reviews) of the CMMI process area Validation provide support for implementation of the TMMi process area Peer Reviews.
- C) The CMMI process area Causal Analysis and Resolution Process Area provides support for implementation of TMMi process area Quality Control.
- D) Implementation of Non-Functional Testing process area of TMMi is supported by the CMMI process area Performance Management.

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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. Which of the following specific goals would you be targeting during the implementation of the Test Policy and Strategy process area?**

Number of correct answers: **1**

- A) Perform a Product Risk Assessment
- B) Establish Test Performance Indicators
- C) Establish a Test Approach
- D) Establish a Test Organization

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

**16. Which of the following is NOT a TMMi level 2 Process Area?**

Number of correct answers: **1**

- A) Test Policy and Strategy
- B) Peer Reviews
- C) Test Monitoring and Control
- D) Test Environment

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

**17. Which process area are you be targeting when implementing the specific practice Define product risk categories and parameters?**

Number of correct answers: **1**

- A) Test Policy and Strategy
- B) Test Planning
- C) Test Monitoring and Control
- D) Test Design and Execution

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

**18. An informal TMMi assessment revealed a weakness in the area of traceability of test conditions and test cases to requirements.**

**Which process area are you be targeting when implementing the specific practice Maintain horizontal traceability with requirements?**

Number of correct answers: **1**

- A) Test Planning
- B) Test Monitoring and Control
- C) Test Design and Execution
- D) Test Lifecycle and Integration

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

**19. A test process assessment has been performed at an embedded software organization. All process areas at TMMi Levels 2 and 3 were in scope of the assessment. Many practices required by the TMMi model are already in place, but the organization is missing a master test plan spanning multiple test levels.**

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

Number of correct answers: **1**

- A) Test Policy and Strategy
- B) Test Planning
- C) Test Organization
- D) Test Life Cycle and Integration

*Learning Objective 5.4 “Recognize the Specific Practices of the TMMi level 3 Process Areas”*

**20. Which TMMi level 3 process area includes the specific practice Establish the Organization’s Test Process Database”?**

Number of correct answers: **1**

- A) Test Organization
- B) Test Lifecycle and Integration
- C) Test Training Program
- D) Peer Review

*Learning Objective 5.5 “Summarize the TMMi level 4 Process Areas (Test Measurement, Product Quality Evaluation, Advanced Reviews) and Specific Goals”*

**21. The objective of a process area is to measure product quality early in the lifecycle, to enhance the test strategy and test approach by aligning static testing with dynamic testing, and to use the static testing results and data to optimize the test approach.**

**Which of the following process areas is concerned with this objective?**

Number of correct answers: **1**

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

*Learning Objective 5.5 “Summarise the TMMi Level 4 Process Areas (Test Measurement, Product Quality Evaluation, Advanced Reviews) and Specific Goals”*

**22. Which of the following are specific goals of maturity level 4 process area Advanced Reviews?**

- i Coordinate the peer review approach with the dynamic test approach**
- ii Perform peer reviews**
- iii Adjust the test approach based on review results early in the life cycle**
- iv Establish test performance indicators**
- v Testing is performed using statistical methods**

Number of correct answers: **1**

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

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

**23. A test organization is trying to implement an improvement goal to develop a quantitative understanding of product quality, as part of the process area Product Quality Evaluation.**

**Which of the following specific practices needs to be addressed as part of process area 4.2 (Product Quality Evaluation) specific goal 1 Project Goals for Product Quality and their Priorities are Established?**

Number of correct answers: **1**

- A) Establish test process measures
- B) Identify non-functional product risks
- C) Identify product quality needs
- D) Measure product quality quantitatively throughout the lifecycle

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

**24. Which of the following is FALSE about the specific goal 1 Align Test Measurement and Analysis Activities in process area 4.1 Test Measurement?**

Number of correct answers: **1**

- A) Specific goal 1 covers the establishment of test measurement objectives
- B) Specific goal 1 addresses the specification of test measures
- C) Specific goal 1 covers the communication of test measurement results after analysis.
- D) Specific goal 1 addresses the specification of data collection, storage and analysis procedures

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

**25. Your organization performs code reviews and architectural reviews on a regular basis, in order to measure product quality early in the lifecycle.**

**This is an example of implementation of a specific practice from which TMMi level 4 process area?**

Number of correct answers: **1**

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

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

**26. Which of the following is a TMMi level 5 process area?**

Number of correct answers: **1**

- A) Advanced Reviews
- B) Test Measurement
- C) Organizational Innovation and Deployment
- D) Defect Prevention

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

**27. Which of the following are NOT specific goals of the TMMi level 5 process area Test Process Optimization?**

- i. **Select test process improvements**
- ii. **Determine, plan and implement test process improvements**
- iii. **Evaluate New Testing Technologies to Determine their Impact on the Testing Process**
- iv. **Deploy test process improvements**
- v. **Monitor product quality against plan and expectations**

Number of correct answers: **1**

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

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

**28. Which of the following statements is FALSE about the level 5 process area Defect Prevention?**

Number of correct answers: **1**

- A) Defect prevention practices propose solutions to eliminate common causes of defects.
- B) In order to prevent as many defects as possible, all defects should be analyzed.
- C) Defect Prevention is based on an analysis of a subset of all defects.
- D) Action proposals drive the improvement activities to prevent defects from reoccurring.

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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. Which of the following statements is FALSE?**

Number of correct answers: **1**

- A) TMMi practices are an expected component, and they can be achieved by an “alternative” practice in an Agile context.
- B) TMMi refers to the fact that testing should be an integrated part of software development and not be treated as something that is totally separate. As such TMMi and Agile approaches can effectively work together.
- C) Agile approaches and TMMi can not only co-exist, but when successfully integrated will bring substantial benefits.
- D) When doing TMMi test process improvement in an Agile organization, an initial set of TMMi practices of TMMi must be imposed on an organization and applied to be applied to prove compliance.

*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 FALSE?**

Number of correct answers: **1**

- A) The focus of improvements in an Agile context is often not on cross-project learning and institutionalization of improvements but on continuous improvements locally.
- B) Both in Agile and traditional environments, a centralized TMMi process improvement project should be set up to ensure proper implementation of improvement actions across the organization.
- C) In an Agile context, there may be a single combined “test document” covering the essential elements of a test policy, test strategy and even high-level test plan. Test process improvers should make “improvement” suggestions which call for more rigorous and thorough test documentation.
- D) In an Agile context, the range and number of alternative improvement ideas to be considered may be significantly higher than compared to non-Agile life cycle models.



*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. Consider the following five statements about TMMi level 2 process areas in an Agile context. Which of these statements are true, and which ones are false?**

Number of correct answers: **1**

- a. Test performance indicators in an Agile context at TMMi level 2 are always more related to team performance (for example, Velocity) than to the end-results of iterations (such as escaped defects).
- b. The product risk assessment process for Agile projects will normally take a more lightweight approach than with a sequential lifecycle model.
- c. The process area Test Monitoring and Control in an Agile context is not as important as in a traditional methodology, since sticking to a rigid plan is not one of the tenets of the Agile manifesto nor one of the principles of Agile.
- d. For TMMi in an Agile project, it is not necessary to have traceability between requirements, test conditions and tests, because test conditions are not part of an Agile methodology.
- e. Following the principles of Agile development, the specification of test environments is normally performed closer to test execution than in a sequential methodology, to provide the opportunity for late changes to be implemented.

- A) Statements (a) and (e) are true, statements (b), (c) and (d) are false
- B) Statement (b) is true, statements (a), (c), (d) and (e) are false
- C) Statements (b) and (c) are true, statements (a), (d) and (e) are false
- D) Statements (b) and (d) are true, statements (a), (c) and (e) are false

*Learning Objective 6.5 Understand how the process areas and practices at TMMi levels 4 and 5 can be used in an Agile context.”*

**32. Which of the following statements is TRUE with respect to TMMi Levels 4 and 5 in an Agile context?**

Number of correct answers: **1**

- A) Because Agile projects tend to focus on defect detection rather than defect prevention, Process area 5.1 Defect Prevention is less relevant when assessing an Agile organisation for TMMi level 5.
- B) Process area 4.3 Advanced Reviews is less relevant in an Agile context because quality tends to be a team effort and verification and validation tend to be discussed at team meetings, not in formal reviews.
- C) When considering the achievement of specific goals in process area 5.3 Test Process Optimization in an Agile context, the deployment of new testing technologies and test improvements do not have to be made across the whole organization, since Agile teams are autonomous and can decide which improvements suit their way of working best.
- D) Agile projects normally do not use operational profiles or usage models of a product on which to base statistically valid inferences to help create a representative sample of tests, thus the TMMi level 5 specific goal “Testing is performed using Statistical Methods” is considered not relevant in an Agile context.

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**Part 7 “TMMi Assessments”**

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

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

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

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

Number of correct answers: **1**

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

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

**34. Which of the following statements is TRUE?**

Number of correct answers: **1**

- A) The involvement of one accredited TMMi lead assessor is a requirement for an informal assessment.
- B) The involvement of two accredited TMMi lead assessors is a requirement for a formal assessment.
- C) An informal assessment does not provide an assessment report.
- D) Only a formal assessment can provide an assessment report with a valid maturity level rating.

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

**35. Which of the following statements about informal assessments is FALSE?**

Number of correct answers: **1**

- A) An informal assessment is a quick scan of an organization’s maturity level against TMMi, but no formal rating is given.
- B) Advantages of informal assessments over formal assessments include: they are less time consuming; they are less costly; they provide a result just as accurate as with a formal assessment.
- C) During a test process improvement programme, informal assessments are typically performed several times.
- D) Only one type of evidence is required for an informal assessment.

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

**36. Given the following assessment phases:**

- i. Interview phase**
- ii. Planning phase**
- iii. Preparation phase**
- iv. Reporting phase**

**Which of following orderings matches the generic assessment process?**

Number of correct answers: **1**

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

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**Part 8 “Implementing TMMi”**

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

**37. Which of the following activities is one that will typically be performed as part of the Diagnosing phase of the IDEAL test improvement cycle?**

Number of correct answers: **1**

- A) Develop Recommendations
- B) Develop Approach
- C) Develop Solution
- D) Plan Actions

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

**38. Which of the following statements about the Acting phase of the IDEAL improvement model is TRUE?**

Number of correct answers: **1**

- A) This phase normally consumes the least effort in the IDEAL process, at about 15% of the total.
- B) “Develop approach” and “Create solution” are activities in this phase.
- C) “Plan actions” and “Implement solution” are activities in this phase.
- D) “Create solution” and “Implement Solution” are activities in this phase.

*Learning Objective 8.6 “Summarize the activities of the learning phase of the improvement framework”*

**39. Which of the statements about the Learning Phase of the IDEAL improvement framework is the TRUE?**

Number of correct answers: **1**

- A) The Learning Phase includes the activities “Analyze and Validate”, “Refine Solutions” and “Propose Future Actions”.
- B) Since most work has been done in the previous phases, the Learning Phase is not important.
- C) The Learning Phase is the last, but nevertheless an important phase of the improvement cycle.
- D) At the end of the Learning phase, all the improvement activities must have been completed and all improvement goals must have been achieved.

*Learning Objective 8.7 "Recognize the critical success factor for test process improvement"*

**40. Which of the following is a critical success factor that is typically most relevant while establishing improvements?**

Number of correct answers: **1**

- A) Work on both long term and short term goals
- B) Management commitment
- C) The maturity of the development organization
- D) Organize test improvement as a project

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## Answers and Justifications

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### Part 1 “Context of Test Improvement”

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**Question 1: A**

Correct answer A): Introducing a new process improvement framework is not by itself a benefit to the business. All three other answers B), C) and D) are potential business reasons for running a test process improvement program.

**Question 2: A**

Answer A) is incorrect as TMMi addresses **all** levels and aspects of testing, from unit testing to acceptance testing in software and systems engineering, including both dynamic and static testing.

**Question 3: C**

A), B) and D) are incorrect as these are direct benefits of test process improvement. C) is the correct answer as increasing motivation is an indirect result of improved processes though not a direct result of actions (unlike a dedicated program to increase personnel motivation).

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

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**Question 4: A**

Correct answer A): The staged representation in CMMI is described by a fixed set of maturity levels with process areas assigned to them.

**Question 5: D**

Answer D) is correct as CMMI at maturity levels 3 has indeed two dedicated process areas for testing, Validation and Verification.

**Question 6: A**

Answer A) is correct, the initial period is described by Hetzel and Gelperin as debugging-oriented, followed by demonstration, destruction, evaluation and the last phase being described as prevention-oriented.

**Question 7: C**

The correct answer is C, see section 1.4 of TMMi. A) is incorrect as the TMMi Framework specifically states:” The TMMi provides a full framework to be used as a reference model during test process improvement. It does not provide an approach for test process improvement“. B) and D) are incorrect as the TMMi framework does not focus on a specific development method or size of organization.

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### **Part 3 “TMMi Maturity Levels”**

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**Question 8: D**

Test Policy and Strategy is a level 2 process area, Defect Prevention a level 5 process area, Test Lifecycle and integration a level 3 process area and Advanced Review a level 4 process area..

**Question 9: B**

The names of the five maturity levels are (from low to high maturity), initial, managed, defined, measured and optimization. As a result B is the correct answer.

**Question 10: A**

Correct answer A): The description is extracted from paragraph 2.3 Level 2 Managed of the TMMi Framework. This description relates to the practices within the process area Test Policy and Strategy.

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### **Part 4 “Structure of the TMMi”**

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**Question 11: B**

A) is incorrect, Sub-practices are associated to specific practice and specific goals as informative components. They are not associated to maturity levels.

B) is correct, there are 10 generic practices for generic goal 2, and these are common for all process areas.

C) is incorrect, each specific practice is associated to exactly one specific goal. Specific goals are associated to process areas, and process areas belong to one and only one maturity level.

D) is incorrect as sub-practices and typical work products are informative model components only; they are not mandatory to be implemented. Implementing a sub-practice can result in a work product that is listed as a typical work product, but it is not mandatory to implement sub-practices together with typical work products.

**Question 12: C**

Only required components (specific and generic goals) describe what an organization must comply with to satisfy a process area

**Question 13: D**

Answer D) is correct as it belongs to generic goal 3, (Institutionalize a defined process). The Generic Practices mentioned in answers A), B) and C) belong to generic goal 2.

**Question 14: A**

Answer A) is correct, see section “Supporting CMMI Process Areas for TMMi” in the TMMi framework document.

Answer B) is incorrect, the CMMI process area Verification provide support for implementation of the TMMi process area Peer Reviews.

Answer C) is incorrect, the CMMI process area Causal Analysis and Resolution Process Area provides support for implementation of TMMi process area Defect Prevention.

Answer D) is incorrect, a process area under the name Performance Management does not exist within the CMMI.

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**Part 5 “TMMi Model”**

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**Question 15: B**

Answer B) is correct. Establishing a Test Approach and Performing a Product Risk Assessment are specific goals within the Test Planning process area, whereas Establish a Test Organization is a specific goal within the Test Organization process area at maturity level 3.

**Question 16: B**

Correct answer: B) as Peer Reviews is a TMMi level 3 process area.

**Question 17: B**

B) is correct, in the process area Test Planning, specific practice 1.1 is defined as Define Product Risk Categories and Parameters.

A) is incorrect, the specific practices in the process area Test Policy and Strategy cover a generic product risk assessment, but do not define the product risk categories and parameters.

C) and D) are incorrect, they do not cover specific practices for product risk assessment.

**Question 18: C**

C) is correct, in the process area Test Design and Execution, specific practice 1.4 is defined as Maintain Horizontal Traceability to Requirements.

**Question 19: D**

Answer D) is correct; the level 3 process area Test Lifecycle and Integration has the specific goal Establish a Master Test Plan.

**Question 20: B**

Answer B) is correct, as part of the process area Test Organization, specific goal 1 Establish Organizational Test Process Assets a test process database is being established.

**Question 21: C**

C) is correct, this is indeed main purpose of process area 4.3 Advanced Reviews.

A) is incorrect, because the purpose of process area 3.5 Peer Reviews is to verify that work products meet their specified requirements and to remove defects from selected work products early and efficiently, but does not include the alignment of static and dynamic testing.

B) and D) are incorrect as these process areas do not include practices for performing static testing.

**Question 22: B**

Answer B) states two specific goals (i and iii) that are both part of Advanced Reviews

Perform Peer Reviews is a specific goal for Peer Review (TMMi level 3), Establish Test Performance Indicators is a specific goal for Test Policy and Strategy (TMMi level 2) and Testing is Performed using Statistical Methods is a specific goal for Quality Control (TMMi level 4).



**Question 23: C**

Answer C) is correct, this is specific practice 1.1 of specific goal 1 Project Goals for Product Quality and their Priorities are Established of process area Product Quality Evaluation.

Answer D) is specific practice 2.1 of specific goal 2 Actual Progress towards the Project's Product Quality Goals is Quantified and Managed, also for the process area Product Quality Evaluation.

Answers A) and B) are not part of the Product Quality Evaluation process area.

**Question 24: C**

Answer C) is correct as this specific practice belongs to specific goal 2 Provide Test Measurement Results of the Test Measurement process area. All other answers are related to specific goal 1 Align Test Measurement and Analysis Activities

**Question 25: C**

Answer C) is correct, the Advanced Reviews process area deals with using review to measure product quality and based on the results possibly adjusting the test approach.

**Question 26: D**

Answer D) is correct, Defect Prevention is a TMMi level 5 process area.

Answers A) and B) mention a TMMi level 4 process area

Answer C) mentions a CMMI level 5 process area.

**Question 27: C**

i, iii and iv are indeed specific goals for test process optimization.

ii is a specific goal of the level 3 process area Test Organization, this is where test process improvement become institutionalized

v is a specific goals of the level 2 process area Test Monitoring and Control

**Question 28: B**

Answer B) is correct since the selection of defects should be based on factors such as risk, business value or where the defects are most critical. Specific goal 1 of process area 5.1 Defect Prevention defines selection parameters and defect classification schemes to then select defects for analysis. Analyzing all defects is therefore not a recommend practice.

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**Part 6 “TMMi in an Agile context”**

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**Question 29: D**

Answer D) is the correct answer. When implementing TMMi one must take into account that the intent of the TMMi model is not to “impose” a set of practices on an organization, nor is it to be applied as a standard to which one must “prove compliance”. See the introduction part of “TMMi in the Agile world” for more context.

**Question 30: C**

C) is the correct answer. There may be a single combined “test document” covering the essential elements of a test policy, test strategy and even high-level test plan. Test process improvers should avoid making “improvement” suggestions which call for more rigorous and thorough test documentation. The other answers are true as stated in “TMM in the Agile World” section 1.5.

**Question 31: B**

(B) is the correct answer. "TMMi in the Agile World" section 2.2.1 states "The product risk assessment process in an Agile project will have a much more lightweight format compared to those applied in a traditional projects following a sequential lifecycle model."

a. is incorrect. Although performance indicators may be called "team performance indicators" Section 2.1.3 states "indicators at TMMi level 2 are mainly related to the end-results of the iterations. Examples would include escaped defects, velocity, customer satisfaction ratings, effort/waste, test automation percentage etc."

c. is incorrect. Section 2.3 states "monitoring and control are essential elements of an Agile project, although Test Monitoring and Control could in an Agile context be interpreted as providing best practices to continuously adjust the plan to keep it current, which is what Agile approaches recommend".

d. is incorrect. Section 2.4.1 states "Traceability between the requirements, test conditions and tests needs to be established and maintained. Teams need to make clear that they have covered the various user stories and acceptance criteria as part of their testing."

e. is incorrect. Section 2.5.2 states "Defining the test environment (including generic test data) could as with a sequential lifecycle start by means of a full plan, but it is often better to start with the implementation **as soon as possible**, and to have an initial version of the test environment available upon the start of the first iteration."

**Question 32: C**

(C) is the correct answer. "TMMi in the Agile World" section 5.3.3 states "Test improvements and appropriate new testing technologies are incorporated into the organizational test process assets as appropriate, training and support are organized and offered. However, in the end the Agile team themselves should decide whether or not the test improvement will become part of their way-of-working."

(A), (B) and (D) are all incorrect statements.

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**Part 7 "TMMi Assessments"**

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**Question 33: A**

Answer A) is correct as for an informal assessment only an accredited TMMi assessor and one type of evidence collection is needed.

**Question 34: D**

D) is the correct answer, only a formal assessment can provide a valid maturity rating.

Answer A) is wrong because in principle anyone can conduct an informal assessment.

Answer B) is incorrect as just one accredited TMMi lead assessor and one TMMi accredited assessor is the minimum requirement for a formal assessment, not two accredited TMMi lead assessors.

Answer C) is incorrect since an informal assessment could (and probably should) provide an assessment report.

**Question 35: B**

B) is the correct answer as it is the only untrue statement. An informal assessment will not provide as accurate an assessment result as a formal assessment, e.g., since only one type of evidence is required.

**Question 36: B**

B) is the correct answer. The assessment phases in correct chronological order: planning, preparation (typically includes a study of documentation), interview and finally reporting.

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## **Part 8 “Implementing TMMi”**

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**Question 37: A**

Answer A) is correct, Develop Recommendations is part of the Diagnosing phase.

Develop Approach and Plan Actions are part of the Establishing phase, and Develop Solution is part of the Acting phase.

**Question 38: D**

Answer D) is the correct answer as during the acting phase improvement solutions are being created, piloted, refined and implemented.

Answer A) is incorrect, as during the Acting phase most of the effort (appr. 60 - 70%) should be spent for a test improvement project to be successful.

Answers B) and C) are incorrect as developing the approach and planning actions are part of the Establishing phase.

**Question 39: C**

C) is the correct answer as this is the final phase of the improvement cycle, yet still a very important one to perform.

Answer A) is incorrect since refining solutions belongs to the Acting phase.

B) is an incorrect answer. The Learning phase is very important for a process improvement project since it evaluates how well the improved processes have progressed, and more importantly give the direction and advice for next improvement cycle.

Answer D) is a misunderstanding as not all goals and tasks shall be been completed during an improvement cycle. The incomplete goals and tasks are most likely an input for next improvement cycle.

**Question 40: A**

A) is the correct answer, it's important when doing test process improvement to have both short term and long term goals.

All other answers related to the initiating phase of a test process improvement program, one has to establish management commitment, in setting objectives one needs to take into account the maturity of the development organization and also needs to set up the program as a full project.