# OMG-Certified Systems Modeling Professional - Model Builder – Advanced

OMG OMG-OCSMP-MBA400

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#### **QUESTION NO: 1**

Choose the correct answer

Which SysML diagram type is a modification of the UML Class diagram?

- A. Parametric Diagram
- B. Internal Block Diagram
- C. Package Diagram
- D. Block Definition Diagram

#### ANSWER: D

#### **Explanation:**

The SysML diagram type that is a modification of the UML Class diagram is the Block Definition Diagram (BDD). A BDD shows the definition of blocks in terms of their features, such as properties, operations, ports, etc. It is similar to a UML Class diagram, but it adds some features specific to SysML, such as value types, units, flow properties, etc. A block is an extension of the UML Class metaclass that can be used to model any system component with structure and behavior. References: https://www.omg.org/ocsmp/ocsmp-adv-exam.htm https://sysml.org/tutorials/sysml-diagram-tutorial/

#### **QUESTION NO: 2**

Choose the correct answer

Which statement is true about a method?

- A. A method Is generic and can be used out-of-the-box
- **B.** A method is not necessary to build an effective SysML model.
- C. A method must be adapted to company or project specific needs
- **D.** A method must be adapted to the specific features of the modeling language

#### **ANSWER: C**

#### **Explanation:**

A method is a technique or procedure for performing a specific task. A method is not generic and cannot be used out-of-the-box, because it depends on the context and purpose of the task. A method is not unnecessary to build an effective SysML model, because it provides guidance and structure for the modeling process. A method does not depend on the specific features of the modeling language, because it can be applied to different languages with appropriate adjustments. Therefore, a method must be adapted to company or project specific needs, because it should reflect the goals, requirements, constraints, and preferences of the stakeholders involved in the project

#### **QUESTION NO: 3**

Choose the correct answer

How does SysML support systems engineering methodologies?

- A. The generalization mechanism enables fitting of SysML to a methodology
- **B.** The stereotype and profile mechanisms enable lilting of SysML to a methodology.
- C. SysML can only support a systems engineering methodology if it is used at the starting point of the project
- D. SysML does not support system engineering methodologies, as it is a language

#### **ANSWER: B**

#### **Explanation:**

SysML is a general-purpose modeling language for systems engineering that can support various systems engineering methodologies. The stereotype and profile mechanisms are features of SysML that enable customizing and extending the language for a specific domain or purpose. By using stereotypes and profiles, SysML can be adapted to fit different methodologies and conventions without changing the core language semantics

#### **QUESTION NO: 4**

Choose the correct answer

A bank manager and his core team want to consolidate internal processes, detect conflicts among processes, and improve customer experience. The core team includes the lead person from each of the process areas (such as transactions, customer management, and marketing). The manager wants to architect the overall system processes based on the following.

- (1) Relationships among the internal processes should be clearly identifiable and managed.
- (2) The core team members should be able to improve their processes simultaneously.
- (3) The architecture should aid visualization and analytics

Which model organization approach would be most efficient?

- A. create a SysML model for each of the core processes and for each relationship between processes
- B. create a SysML model that contains only one diagram showing all the core processes and their relationships
- C. create a SysML model for each of the core processes, and manage relationships between processes in a spreadsheet
- **D.** create a SysML model that contains a package for each of the core processes, and a package for the overall consolidated process and related relationships
- **E.** create a SysML model that contains a package for each of the core processes, a package for each of the relationships between processes, and a package for the overall consolidated process

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#### **Explanation:**

This model organization approach would be most efficient because it allows the bank manager and his core team to modularize and structure their system processes using SysML packages. A package is a grouping mechanism that can contain any kind of model element, such as diagrams, blocks, activities, etc. By creating a package for each of the core processes, the team members can work on their own processes independently and concurrently. By creating a package for each of the relationships between processes, the team can identify and manage the dependencies and interactions among the processes. By creating a package for the overall consolidated process, the team can have a holistic view of the system and perform visualization and analytics using SysML diagrams and parametrics. References: https://www.omg.org/ocsmp/ocsmp-adv-exam.htm https://sysml.org/tutorials/sysml-diagram-tutorial/

#### **QUESTION NO: 5**

Choose the correct answer

The concerns of a group of stakeholders involved m a systems development project have been identified. What is the next project task to be earned out?

- A. Define a set of viewpoints and align them with concerns
- B. Define a set of viewpoints and align them with stakeholders
- C. Group together similar stakeholders and assign them to viewpoints
- **D.** Group concerns to identify stakeholders that are interested in the same viewpoint.

#### **ANSWER: A**

#### **Explanation:**

The next project task to be carried out after identifying the concerns of a group of stakeholders involved in a systems development project is to define a set of viewpoints and align them with concerns. A viewpoint defines how a view should be constructed and used to address a set of stakeholder concerns. By defining and aligning viewpoints with concerns, the project can ensure that each concern is covered by at least one viewpoint, and that each viewpoint addresses one or more concerns. References: https://www.omg.org/ocsmp/ocsmp-adv-exam.htm https://web.mst.edu/lib-circ/files/special%20collections/INCOSE/A%20Generic%20Method%20for%20Defining%20Viewpoints%20in%20SysML.pdf

#### **QUESTION NO: 6**

Choose the correct answer

Which data exchange mechanism uses an application programming interface (API) to access data m one tool and make it available in another tool?

- A. manual exchange
- B. file-based exchange
- C. interaction-based exchange
- D. repository-based exchange

#### **ANSWER: C**

#### **Explanation:**

Interaction-based exchange is a data exchange mechanism that uses an application programming interface (API) to access data in one tool and make it available in another tool. The API allows for direct communication and synchronization between the tools without requiring intermediate files or repositories. This approach can provide better performance and consistency than file-based or repository-based exchange.

#### **QUESTION NO: 7**

Choose the correct answer

An engineer using SysML modeling tool B imports an XMI die produced by SysML modeling tool A (containing a complete model) and makes changes to the model

What is the best way XMI provides to introduce the changes back to the original model in the original tool (Tool A)?

- A. Export only the modified and new elements to XMI and import it to Tool A.
- B. Produce a special XMI file expressing the differences from the original XMI and import it into Tool A
- C. Partition the models and exchange parts of the models alter identifying the parts that were changed.
- D. Import the entire model back to Tool A as a separate copy and use the tool's diff/merge utility to merge in the changes

#### **ANSWER: B**

#### **Explanation:**

XMI is a standard format for exchanging metadata information via XML, such as UML models. XMI supports a mechanism for producing a special XMI file that contains only the differences between two versions of a model, called a difference model. This file can be imported into another tool to apply the changes to the original model. This approach is more efficient and reliable than exporting and importing the entire model or parts of it

#### **QUESTION NO: 8**

Choose the correct answer

What distinguishes a software development methodology from a systems development methodology?

- A. All current systems development methodologies are extensions of previous software development methodologies.
- **B.** Software development methodologies employ formal architecting techniques, while systems development methodologies tend not to.
- **C.** Systems development methodologies tend to focus on holistic issues, while software development methodologies tend to focus on high quality code.
- **D.** For software intensive systems, there is effectively no difference between system development methodologies and software development methodologies
- E. There is no difference Any methodology good for software development should be good for systems development.



#### **ANSWER: C**

#### **Explanation:**

The main difference between software development methodologies and systems development methodologies is that software development methodologies tend to focus on high quality code, such as functionality, reliability, performance and maintainability, while systems development methodologies tend to focus on holistic issues, such as stakeholder needs, system boundaries, interfaces, trade-offs and lifecycle management. Software development methodologies are usually applied to software-intensive systems or subsystems, while systems development methodologies are usually applied to complex systems that involve multiple disciplines and domains. It is not true that all current systems development methodologies are extensions of previous software development methodologies, as some systems development methodologies have different origins and foundations. It is not true that software development methodologies employ formal architecting techniques, while systems development methodologies tend not to, as both types of methodologies can use different levels of formality and rigor in their architecting approaches. It is not true that for software intensive systems, there is effectively no difference between system development methodologies and software development methodologies, as software intensive systems still require a broader and deeper perspective than software development methodologies can provide. It is not true that there is no difference between any methodology good for software development and any methodology good for systems development, as different types of systems may require different types of methodologies that suit their characteristics and challenges. References: OMG-Certified Systems Modeling Professional - Model Builder -Advanced (OCUP2-ADV) Examination Guide Version 1.0, Section 4.5

#### **QUESTION NO: 9**

Choose the correct answer

What is a fundamental goal of UPDM?

- A. to define a common means of expressing DoDAF and MODAF architectures using the same underlying metamodel
- B. to capture the common aspects of MODAF and DoDAF elements, removing the elements and views that are not common
- C. to define a common means of expressing DoDAF and MODAF architectures so that they can be modeled solely in SysML
- **D.** to separate the DoDAF and MOOAF metamodels but give them a common underpinning by creating a separate UML profile for each of them within UPDM

#### **ANSWER: A**

#### **Explanation:**

A fundamental goal of UPDM is to define a common means of expressing DoDAF and MODAF architectures using the same underlying metamodel. UPDM is a UML profile that supports both DoDAF and MODAF, which are two main architectural frameworks used in the defense domain. UPDM provides a common set of elements and relationships that can be used to represent architectures in either framework, using a Domain Metamodel that captures the core concepts of both frameworks. UPDM also provides mappings to UML and SysML concepts to enable implementation and integration with other modeling languages and tools. References: https://www.omg.org/ocsmp/ocsmp-adv-exam.htm https://www.omg.org/updm/

#### **QUESTION NO: 10**

Choose the correct answer

What are views and viewpoints used to show?

- A. the system under development by the stakeholders
- **B.** the modeling responsibilities of different stakeholders
- C. the aspects of a model that relate to different stakeholders
- **D.** the aspects of a model important to users as stakeholders

#### ANSWER: C

#### **Explanation:**

Views and viewpoints are used to show the aspects of a model that relate to different stakeholders. A view is a representation of a subset of a model that addresses a set of stakeholder concerns. A viewpoint is a specification of a perspective on a model that defines how a view should be constructed and used. By using views and viewpoints, different aspects of a model can be presented in a way that is relevant and understandable for different stakeholders. References: https://www.omg.org/ocsmp/ocsmp-adv-exam.htm

https://docs.nomagic.com/display/SYSMLP184/Views+and+Viewpoints+Diagram