Vendor:OMG

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Exam Name:OMG-Certified Systems Modeling Professional - Model Builder – Advanced

Version: Demo

QUESTION 1

Choose the correct answer

The main diagram type in Modelica corresponds most closely to which SysML diagram type?

A. act

B. bdd

C. ibd

D. par

Correct Answer: C

The main diagram type in Modelica corresponds most closely to the ibd (internal block diagram) in SysML. An ibd shows the internal structure of a block in terms of its parts, ports, connectors, and flows. It is similar to a Modelica diagram, which shows the components of a model in terms of their connectors and equations. Both diagram types can be used to represent physical systems composed of interconnected elements with defined behaviors and properties.

QUESTION 2

Choose the correct answer.

Which versions of the various Architectural Frameworks does UPDM 1.0 officially support?

A. DoDAF 1 0 and MODAF 1.2

B. DoDAF 1.5, MODAF 1.2. and NAF 3.0

C. DoDAF 1 5 and 2.0, and MODAF 1.2

D. DoDAF 1 5 and MODAF 1.2

Correct Answer: C

The versions of the various Architectural Frameworks that UPDM 1.0 officially supports are DoDAF 1.5 and 2.0, and MODAF 1.2. UPDM 1.0 provides two sets of profiles: one for DoDAF 1.5 and MODAF 1.2 based on the UPDM 1.1 metamodel, and another for DoDAF 2.0 based on the same metamodel. UPDM 1.0 does not support NAF (NATO Architecture Framework), which is another architectural framework used in the defense domain.

QUESTION 3

Choose the correct answer

Which OMG specifications does UPDM use at L1?

A. UMLandSysML

B. UML. SysML. and BPMN

C. UML, SysML and MARTE

D. UML, SysML and SOAML

Correct Answer: A

The OMG specifications that UPDM uses at L1 are UML and SysML. L1 is the level of abstraction that defines the core concepts of UPDM without any implementation details. It is based on a Domain Metamodel that captures the common elements of DoDAF and MODAF. The Domain Metamodel is mapped to UML and SysML concepts using a Platform Independent Model (PIM). UML and SysML provide the basic metaclasses and diagrams that UPDM uses to represent architectures.

QUESTION 4

Choose the correct answer

A senior engineer has been assigned to set up a SysML model for the development of a medical device. Many stakeholders are involved, ranging from the development team to management, quality assurance, and regulatory experts. All must use the model

Which choice defines a set of common tasks that will prepare the model for the stakeholders?

A. 1) Define and apply appropriate profiles 2) Create a package structure that covers the relevant aspects 3) Set up a modeling center of excellence who builds the model for the stakeholders.

B. Define and apply appropriate profiles 2) Define viewpoints for the different stakeholder concerns and set up conformant views 3) Create a package structure that covers the relevant aspects

C. 1) Define one common set of SysML elements for all stakeholders. 2) Create a package structure that covers the relevant aspects 3) Set up model access rights (readVwrite/delete) for the different stakeholder groups

D. 1) Define viewpoints for the different stakeholder concerns and set up conformant views 2) Set up model access rights (read/write/delete) for the different stakeholder groups 3) Nominate a model builder for each stakeholder group.

Correct Answer: B

This choice defines a set of common tasks that will prepare the model for the stakeholders by using profiles, viewpoints, and packages. Profiles are used to extend SysML with domain-specific or methodology-specific concepts. Viewpoints are used to define different perspectives on the model that address different stakeholder concerns. Packages are used to organize the model elements into logical groups. These tasks will help to customize, structure, and communicate the model effectively.

QUESTION 5

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

Correct Answer: D

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.

QUESTION 6

Choose the correct answer A system modeler exports requirements from a requirements management tool into a spreadsheet and then imports the requirements into a system modeling tool.

Which type of data exchange is this considered?

A. manual exchange

B. file-based exchange

C. interaction-based exchange

D. repository-based exchange

Correct Answer: B

This type of data exchange is considered file-based exchange because it involves transferring data between different tools using files as intermediaries. A file-based exchange is a common way of exchanging data between tools that do not have direct integration or compatibility. It requires the tools to support import and export functions for a common file format, such as CSV, XML, XMI, etc. A file-based exchange can be useful for transferring large amounts of data or for performing batch operations. However, it can also have some drawbacks, such as loss of information, lack of synchronization, or manual intervention.

QUESTION 7

Choose the correct answer-.

Which technique allows a user to objectively determine the best means of implementing a particular (unction?

A. a trade study

B. an objective analysis

C. operational research

D. a requirements analysts

Correct Answer: A

A trade study is a method for making a decision between competing alternatives based on a set of criteria, such as cost, performance, reliability, etc. A trade study allows a user to objectively determine the best means of implementing a particular function by evaluating and comparing the pros and cons of each alternative. A trade study can also help

identify trade-offs and risks associated with each alternative

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QUESTION 8

Choose the correct answer.

Given the following diagram fragment:
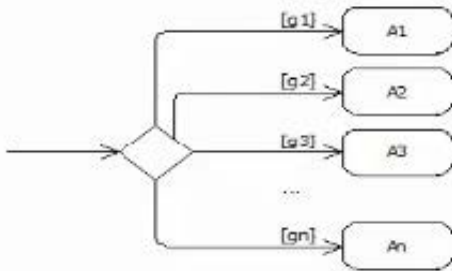
Which criterion indicates that a decision node construct such as this is well-formed?

A. No activity Ai will negate the corresponding guard [gi]

B. Taken together, the guards cover all possibilities and are mutually exclusive.

C. Each guard legal can be evaluated without changing the state of any item referenced by the corresponding activity or action Ai

D. The guards are understandable by stakeholders in the development effort.

Correct Answer: B

A decision node is a construct in SysML that represents a branching point in an activity diagram where alternative paths are chosen based on some conditions. The guards are expressions that specify the conditions for each outgoing edge from the decision node. A criterion that indicates that a decision node construct is well-formed is that the guards cover all possibilities and are mutually exclusive, meaning that for any input value, exactly one guard evaluates to true and all others evaluate to false. This ensures that there is no ambiguity or conflict in choosing the next path in the activity.

QUESTION 9

Choose the correct answer

What are some general rules to be applied at the end of requirements analysis to determine that (1) an activity diagram is self-consistent and (2) all elements on the diagram belong there\\' Select the option that gives the most general answer without including any irrelevant rules

A. Every diagram element is traceable to a requirement or use case. (2) Every input object can be traced through the diagram to an output object, butler, or data store. (3) There Is a path from the initial node to every activity final and flow final node

B. Every diagram element is traceable to a requirement, use case or undocumented user need. (2) Every input object can be traced through the diagram to (a) an output object, buffer, data store or the object is consumed without producing any other object (3) .There is a path from the initial node to every activity final and How final node.(b) an action that clearly states how

C. Every diagram element is traceable to a requirement or use case (2) Every Input object can be traced through the diagram to (a) an output object, buffer, or data store how the object is consumed without producing any other object fv (3) There Is a path from the initial node to every activity final and flow final nodeor (b) an action that clearly states

D. Every diagram element is traceable to a requirement or use case (2) Every input object can be traced through the diagram to (a) an output object, buffer or data store how the object is consumed without producing any other object. (3) There is a path from the initial node to every activity final and flow final node (4) The diagram has no cycles of control flows or (b) an action that clearly states

Correct Answer: C

Option C gives the most general answer without including any irrelevant rules. Option A is incorrect because it does not account for the possibility of an input object being consumed without producing any other object. Option B is incorrect because it introduces the concept of undocumented user need, which is not part of the requirements analysis. Option D is incorrect because it adds an unnecessary rule about cycles of control flows, which are not prohibited in activity diagrams. References: OMG-Certified Systems Modeling Professional - Model Builder ?Advanced (OCUP2-ADV) Examination Guide Version 1.0, Section 4.2.1.3

QUESTION 10

Choose the correct answer

A stereotype is defined in a profile This stereotype has two properties whose types were already defined in the model

What must be done to reuse their type definitions?

A. The package defining the types needs to apply the profile.

B. The package defining the types needs to import the profile

C. The profile needs to apply the package where these types are defined.

D. The profile needs to import the package where these types are defined.

Correct Answer: D

To reuse the type definitions of the properties of a stereotype, the profile needs to import the package where these types are defined. An import relationship indicates that the elements in one package can be referenced by another package without a qualified name. By importing the package with the types, the profile can use them as attributes of the stereotype without having to redefine them.

QUESTION 11

Choose the correct answer

Modehca solvers can produce large volumes of time-based results (such as time-based power usage), but requirements are often based on scalar values such as "maximum peak power" and \\'average power usage".

Which of the following is generally the most effective way to verify such requirements?

A. Import the Modelica time-based power usage results into SysML Then use SysML parametncs to calculate these scalar values, and compare them to the requirements

B. ave the Modelica solver also compute these scalar values from its time-based power usage results Then import the resulting scalar values into SysML. and compare them to the requirements.

C. Use the SysML4Modelica profile to transform the Modelica time-based power usage results into these scalar values Then import the resulting scalar values into SysML, and compare them to the requirements.

D. Modelica models can only produce time-based results and thus cannot support scalar results like these, which must either be calculated using a different tool or measured on physical prototypes Then enter the resulting scalar values into SysML, and compare them to the requirements

Correct Answer: B

The most effective way to verify such requirements is to have the Modelica solver also compute these scalar values from its time-based power usage results. Then import the resulting scalar values into SysML, and compare them to the requirements. This way, the verification can be done at the same level of abstraction as the requirements, and avoid unnecessary transformations or calculations in SysML. Modelica solvers can provide various functions and operators to compute scalar values from time-based results, such as max, min, mean, integral, etc.

QUESTION 12

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

Correct Answer: E

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.