OMG-OCSMP-MBA400 Q&As

OMG-Certified Systems Modeling Professional - Model Builder – Advanced

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QUESTION 1

Choose the correct answer

The lead systems engineer on a project has identified a set of Key Performance Parameters (KPPs) that need to be evaluated both on a periodic basis during development, and during acceptance for everydesign change. Many of these KPPs are expressed In complex, interrelated differential equations The analysis team has identified appropriate numerical techniques for solving these equations and expressed them in a popular analysis tool.

The lead system modeler and methodologist must ensure that the architecture and design captured in the SysML system model are continuously and accurately reflected In the KPP calculations.

Which strategy is likely to be most successful in accomplishing this?

A. Task the analysis learn with recasting each of the KPP equations as constraint blocks and parametric models directly in SysML and linking the resulting parameters to value properties of current system model elements Keeping all information in the same model is the only way to guarantee the consistency the lead engineer has asked for

B. List the parameters used to evaluate the KPPs in a spreadsheet file. Use the SysML modeling tool\\'s inherent capability to link appropriate value properties to cells in this spreadsheet Task the analysis team with modifying their analysis routines to accept parameters as an input vector from this spreadsheet. Ensure that the spreadsheet is updated from the system model prior to each update of the KPP calculations

C. Work with the analysis team to partition the KPP evaluation model into manageable, reusable subroutines Develop constraint blocks within the SysML model to represent these subroutines, exposing their parameters. Use these new constraint blocks to build a parametric model that ties the KPP evaluation directly to system model element value properties. Leverage available bridging software to link this parametric model to the evaluation subroutines executing in the external analysis tool, and re-evaluate the KPPs on an as-needed basis

D. Use activity and/or state models to accurately model the flow of data to numerically solve the KPP evaluation equations Ensure that the analysis team validates these behavior models Bind each relevant value property within the system model to an activity parameter or state variable such that the KPP evaluation model accurately reflects how the KPPs are derived. Next, use code generation capability inherent in the SysML tool to generate and compile the KPP evaluation routines Recompile and run these routines as needed to update KPP estimates

Correct Answer: B

QUESTION 2

Choose the correct answer

Which statement about working in UPDM compliance level 1 is true?

A. It allows users to express all the views in the architecture using only SysML elements

B. It allows users to bring SysML elements into the architecture to enhance the hand-off between Systems of Systems and Systems.

C. SysML elements are only used in the Systems view to enhance the hand-off process between Systems of Systems and Systems.

D. There is no benefit jas SysML is not used in compliance level 1

Correct Answer: B

Working in UPDM compliance level 1 allows users to bring SysML elements into the architecture to enhance the hand-off between Systems of Systems and Systems. Compliance level 1 is based on UML and SysML concepts and provides integration with system modeling using SysML. Users can use SysML elements, such as blocks, ports, connectors, parametrics, etc., to model system components and their interactions in more detail and precision than using UML elements alone. This can facilitate the transition from architecture modeling to system design and analysis. References: https://www.omg.org/ocsmp/ocsmp-adv-exam.htm https://www.ibm.com/docs/bg/rhapsody/8.3.1?topic=function-designing-updm- profiles

QUESTION 3

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 4

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 5

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.