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QUESTION 1

Choose the coned answer

What characterizes a complete SysML model?

A. All of its element trace back to requirements that are within the scope of the project

B. It uses all SysML diagram types to model all aspects of the system or part being modeled.

C. It includes a complete set of SysML constructs and associations for the system being modeled

D. It has all the necessary information relevant at the level of abstraction that the model represents.

Correct Answer: D

A complete SysML model is one that has all the necessary information relevant at the level of abstraction that the model represents. A complete model does not necessarily have to trace back to all requirements, use all diagram types, or include all constructs and associations. A complete model should capture the essential features and properties of the system or part being modeled, without being too detailed or too abstract. A complete model should also be consistent, coherent and correct. References: OMG- Certified Systems Modeling Professional - Model Builder ?Advanced (OCUP2-ADV) Examination Guide Version 1.0, Section 4.1

QUESTION 2

Choose the correct answer

What is the forward temporal order of these development stages?

1. needs analysis

2. system acceptance

3. system design

4. trade study

A. needs analysis, system acceptance, system design, trade study

B. needs analysis, system design, system acceptance, trade study

C. needs analysis, system design, trade study, system acceptance

D. needs analysis, trade study, system design, system acceptance

E. trade study, needs analysis, system design system acceptance

Correct Answer: C

The forward temporal order of these development stages is based on the typical sequence of activities in a system engineering process. Needs analysis is the first stage, where the problem and the stakeholder needs are defined. System design is the second stage, where the system architecture and requirements are developed. Trade study is the third stage, where alternative solutions are evaluated and compared based on various criteria. System acceptance is

the final stage, where the system is verified, validated, and delivered to the customer.

QUESTION 3

Choose the correct answer

What does a model library add to a SysML model?

A. stereotypes

B. common concepts

C. domain-specific modeling concepts

D. methodology-specific modeling concepts

Correct Answer: B

A model library is a package that contains reusable model elements that can be imported into other models. A model library can add common concepts to a SysML model, such as units, quantities, value types, etc. These concepts can be used to define properties and parameters of blocks and constraints in a consistent and standardized way.

QUESTION 4

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 5

Choose the correct answer.

A modeling team supervisor wishes to force modelers to use particular metamodeling features

What must the supervisor do?

A. place the profile in the current namespace with the model

B. apply the profile to the model

C. Apply the profile to the model with the {strict} keyword applied

D. Apply the profile to the model with the {required} keyword applied

E.?mport?the profile to the model with the {strict} keyword applied

F.?mport?the profile to the model with the {required} keyword applied

Correct Answer: C

To force modelers to use particular metamodeling features, the supervisor must Apply the profile to the model with the {strict} keyword applied. This keyword indicates that only elements with stereotypes defined in the profile can be created as instances of the extended metaclasses. For example, if a profile defines a stereotype as an extension of Class, then only classes with this stereotype can be created as instances of Class when the profile is applied with the {strict} keyword. References: https://www.omg.org/ocsmp/ocsmp-adv-exam.htm https://www.ibm.com/docs/SSB2MU_8.2.0/com.ibm.rhp.sysml.doc/topics/rhp_c_ dm_sysml_profile_features.html

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QUESTION 6

Choose the correct answer

in executing a model-based systems engineering methodology, what should the first step m building the model be?

A. Define the domain model structure

B. Define the initial model organization.

C. Define the initial set of system requirements

D. Define the business or enterprise use cases.

Correct Answer: B

The first step in building the model in executing a model-based systems engineering methodology should be to define the initial model organization. The initial model organization defines the structure and scope of the model, such as the packages, views, viewpoints and frameworks that will be used to organize the model elements and diagrams. The initial model organization provides the foundation and context for the subsequent steps in building the model, such as defining the domain model structure, defining the initial set of system requirements or defining the business or enterprise use cases. The initial model organization can also help establish the modeling conventions and standards that will be followed throughout the model development process. References: OMG-Certified Systems Modeling Professional - Model Builder ?Advanced (OCUP2-ADV) Examination Guide Version 1.0, Section 4.1

QUESTION 7

Choose the correct answer

Which relationship is likely to be most heavily used during requirements analysis?

A. copy

B. refine

C. satisfy

D. verify

Correct Answer: B

The refine relationship is likely to be most heavily used during requirements analysis because it is used to indicate that a model element provides more details or information about a requirement. The refine relationship can be used to link requirements to other requirements, use cases, activities, blocks or any other model elements that can help clarify or elaborate the requirements. The refine relationship can also be used to decompose a requirement into sub-requirements or to show how a requirement is derived from another requirement. The copy relationship is used to indicate that a requirement is identical to another requirement. The satisfy relationship is used to indicate that a design element fulfills a requirement. The verify relationship is used to indicate that a test case or procedure confirms that a design element satisfies a requirement. References: OMG- Certified Systems Modeling Professional - Model Builder ?Advanced (OCUP2ADV) Examination Guide Version 1.0, Section 4.2

QUESTION 8

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 9

Choose the correct answer

A systems engineer is responsible for deploying a model-based systems engineering approach on an unprecedented system, with unclear or incomplete user and system requirements.

What is the most important factor the engineer should consider in selecting a system development methodology?

A. the ability to rapidly prototype the user interface

B. access to a large model library and legacy code base

C. a robust ontology for characterizing complex systems

D. the ability to rapidly explore required system functionality

E. direct support for quickly characterizing and prototyping services

Correct Answer: D

The most important factor that the engineer should consider in selecting a system development methodology for an unprecedented system with unclear or incomplete user and system requirements is the ability to rapidly explore required system functionality. The ability to rapidly explore required system functionality means that the system development methodology can support the elicitation, analysis, validation and verification of the user and system requirements through various techniques, such as use cases, scenarios, prototypes, simulations and tests. The ability to rapidly explore required system functionality can help reduce the uncertainty and ambiguity of the requirements and increase the confidence and satisfaction of the stakeholders. The ability to rapidly prototype the user interface is a less important factor that may not be relevant or applicable to all systems or projects. Access to a large model library and legacy code base is a less important factor that may not be available or suitable for an unprecedented system. A robust ontology for characterizing complex systems is a less important factor that may not be necessary or sufficient for defining the requirements. Direct support for quickly characterizing and prototyping services is a less important factor that may not be relevant or applicable to all systems or projects. References: OMG-Certified Systems Modeling Professional - Model Builder ?Advanced (OCUP2-ADV) Examination Guide Version 1.0, Section 4.5

QUESTION 10

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

Correct Answer: C

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 11

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
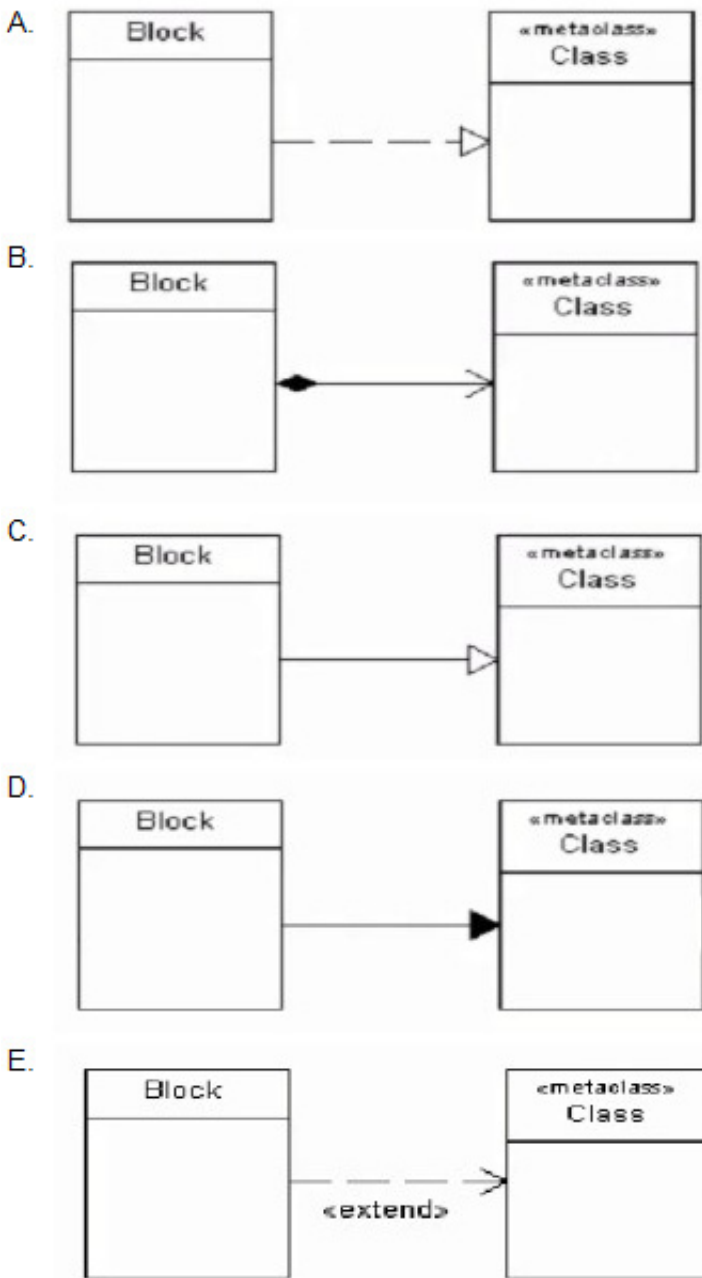
Correct Answer: B

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 12

Choose the correct answer.

Which diagram fragment correctly a SysML Block extending a basic UM Class?

A.

Block	

«metaclass»
Class

B.

Block	

«metaclass»
Class

C.

Block	

«metaclass»
Class

D.

Block	

«metaclass»
Class

E.

Block	

«metaclass»
Class

«extend»

A. Option A

B. Option B

C. Option C

D. Option D

E. Option E

Correct Answer: B

The diagram fragment that correctly shows a SysML Block extending a basic UML Class is Option B. This option shows a Block with the stereotype applied to it. This stereotype indicates that the Block is an extension of the Class metaclass. The Block inherits all the features of the Class, such as attributes, operations, associations, etc., and adds additional

features specific to SysML, such as ports, flows, values, constraints, etc.

QUESTION 13

Choose the correct answer.

A control unit aboard a ship sends commands to a remote-controlled submarine. which in turn sends messages to the ship after completing each major stage of its overall mission. For each distinct stage, the ship orders the submarine to perform a different set of operations. Completing any given stage takes a widely variable amount of time

Why it is appropriate to use the MARTE profile to model this system with SysML?

A. The control unit is an embedded system, which the MARTE profile makes it possible to model in SysML

B. The stage transitions of the mission equate to a logical dock, a temporal construct that MARTE brings to SysML

C. The stage transitions of the mission equate to a chronometric clock a temporal construct that MARTE brings to SysML

D. The control unit must order the submarine\\'s operations in real time, which the MARTE profile makes it possible to model in SysML.

Correct Answer: D

It is appropriate to use the MARTE profile to model this system with SysML because the control unit must order the submarine\\'s operations in real time, which the MARTE profile makes it possible to model in SysML. MARTE is a UML profile that provides concepts and annotations for modeling and analyzing real-time and embedded systems. It supports modeling time-related properties and constraints, such as deadlines, periods, durations, clocks, etc., as well as resource-related properties and constraints, such as memory, CPU, power, etc. By using MARTE, one can capture the real-time requirements and behavior of the system and perform schedulability and performance analysis.

QUESTION 14

Choose the correct answer

How does the Survey of MBSE Methodologies define a methodology

A. A methodology consists of techniques for performing a single task

B. A methodology is a collection of related processes, methods, and tools

C. A methodology is an instrument that can enhance the efficiency of a task

D. A methodology is a logical sequence of tasks to achieve particular objective

Correct Answer: A

According to the Survey of MBSE Methodologies 1, a methodology is defined as a collection of related processes, methods, and tools. A process is a sequence of steps or activities that transform inputs into outputs. A method is a technique or procedure for performing a specific task. A tool is an instrument or device that supports or automates a process or method. A methodology integrates these elements to support a specific domain or purpose.

QUESTION 15

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

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