ME Endterm Exam WS22

25.01.2023

Time limit: 40 minutes

Part I: Graph Transformation (8 points)
Briefly explain the concept of graph transformations and outline the structure of graph transformation rules based on an example that uses constants, variables, and expressions.

Part II: Multi-Level Modeling (8 points)
What is the unique characteristic of Multi-Level modeling compared to the OMG four level architecture? Define a minimalist example and use it to explain how language architectures are defined in a multi-level sense, and how this is or is not possible in the conventional four level architecture.

Part III: Web Modeling (6 points)
Briefly describe the scope of the language server protocol in general and further describe the role it plays in the Eclipse Graphical Language Server Protocol Platform (GLSP). Describe two needs for flexibility that are supported by GLSP-based web modeling tools.

True/False Questions (18 points)
+2p correct answer
0p no answer
-2p wrong answer

- In ATL, lazy rules are applied once for each match found in the input model.
- In Henshin, negative application conditions are defined with the forbid action.
- SysML v2 comes with a textual concrete syntax.
- "Do" blocks of ATL rules are inherited to subrules.
- The left side of a graph transformation rule specifies what must be existing in a concrete graph to execute the rule.
- Meta-markers of template-based model-to-text transformation languages are used to define static text blocks.
- In-place model transformations build a new model from scratch.
- Xtend dispatch methods are required to invoke the code generation process.
- Mode-to-model transformations are used to automatically create target models from source models.