

# **Example questions Method Engineering exam**

## **A. Method engineering**

*Method engineering is defined as the engineering discipline to design, construct, and adapt methods, techniques and tools for the development of information technology systems.*

1. Give an example of designing a method.
2. Give an example of constructing a method.
3. Give an example of adapting a method.
4. Describe an example of a ‘specific way of thinking’ of one particular method you know.
5. Explain why a ‘specific way of thinking’ is important for a method.
6. Explain why the definition of method engineering includes all three activities of design, construction and adaptation of methods, techniques or tools.
7. Explain the difference between a method and a technique.
8. Give an example of a method and a technique that is used in this example method.
9. Explain the difference between a technique and a tool.
10. Explain in terms of the definition above how product fragments and process fragments are related to methods.
11. Explain the suitability of process-data diagrams for the modeling of method fragments.
12. Some authors call a *method* a *methodology*. Motivate why this is poor terminology by explaining the difference between a method and a methodology.

## B. Situational method engineering

13. Give the definition of a situational method
14. Give the definition of a method fragment.
15. Give two examples of a process fragment.
16. Give two examples of a product fragment.
17. Explain the usage of a method base in situational method engineering.
18. Explain how route maps can be used in situational method engineering.
19. Explain why both process fragments and product fragments are needed in situational method engineering.
20. Explain why a meta-modeling technique is necessary for carrying out a situational method engineering project.
21. Give two advantages and two disadvantages of using a situational method over a standard method.
22. Describe the difference between *situational method engineering* and *method configuration* as described by Karlsson and Agerfalk (2004).
23. Explain using a diagram how a situational method is created and used in a particular project. Give a complete textual explanation of the diagram.
24. Explain by using a process-model (i.e. the left-hand side of a process-deliverable diagram) how a situational method is created and used in a particular project. Give a complete textual explanation of the diagram. You do not have to include the roles.
25. A company is using the standard method Unified Process (UP) to develop their applications using a Java based object-oriented platform. However, they now want to develop their web-applications, and it turns out that they want to extend UP with a technique for modeling the web-pages of a website, called Page-Link diagram (PLD). Explain the steps the company needs to perform to extend the UP with this PLD technique.
26. Read the following case:

*A company is using the Web Site Design Method (WSDM) to develop web applications. However, this method does not provide a good solution for modeling a website's navigation. The company wants to extend the WSDM method with a navigation model, which is part of the Object Oriented-Hypermedia (OO-H) method. This will be done by following a situational method engineering approach.*

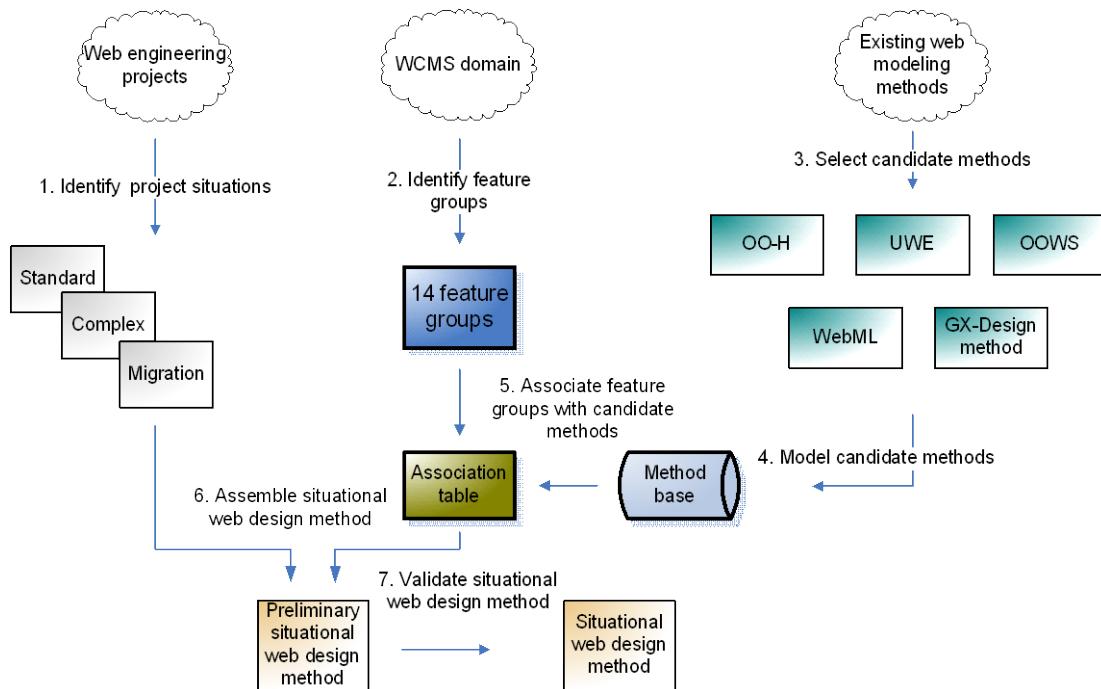
Describe the steps that the company needs to take to extend WSDM with the OO-H navigation model.

The following question is based on the paper:

Based on Ralyté, J., Deneckère, R., & Rolland, C. (2003). Towards a generic model for situational method engineering. In J. Eder and M. Missikoff (Eds.), *Lecture Notes in Computer Science, Vol. 2681* (pp. 95–110). Berlin Heidelberg: Springer-Verlag.

27. Explain what the *extension driven* strategy entails, and give an example.

In the lecture on assembly-based situational method engineering, the following figure of the method association approach was presented:



28. Step 1 identifies the project situations. Explain how the three project situations are implemented in the final Situational Web Design Method.

29. What are feature groups?

30. Explain how the Method Association approach should be adapted for a different software product.

31. In step 3 the candidate methods are selected. Explain the necessity of this selection.

32. Explain the association process in step 5.

33. Describe the necessity of the validation in step 7 and describe a possible way to perform this step.

## C. Techniques

34. What is the method, the technique and the notation in the statement: '*Class modeling using Class diagrams is part of Unified Process*'

Method:

Technique:

Notation:

35. What is the method, the technique and the notation in the statement: '*Use case modeling using Use case diagrams is part of the Rational Unified Process*'

Method:

Technique:

Notation:

36. Does the Visio tool support a technique or a notation? Explain your answer.

37. Explain why it is important to distinguish the technique from a notation.

38. Give three other examples of techniques with their notations.

39. A tool is a (possibly automated) means to support a method, technique or notation. Is this a correct statement? Explain your answer.

40. Describe one way to make a classification of techniques in information systems development

41. Explain how the classification of techniques is needed in a method base **and** in the creation of a situational method.

42. Describe one way to make a classification of techniques in information systems development.

## **D. Method Comparison**

The following questions are based on the paper:

Hong, S., van der Goor, G. and S. Brinkkemper, *A Comparison of Object-Oriented Analysis and Design Methodologies*, Proc. 26th Hawaiian Conference on System Sciences (HICSS-26), IEEE Computer Science Press, Vol. IV, pp. 689-698 1993.

43. Give two reasons why comparison of methods should be done by using meta-models.
44. Describe how different meta-models were used to compare the six object oriented methods.
45. Explain the reason that it was needed to use a supermethod(ology) for the comparison of the activities and the concepts?
46. Explain why the comparison indicators ‘=’, ‘<’, ‘>’, and ‘><’ could be used to compare activities, but could not be used in the comparison of concepts.
47. Explain what it means when a cell is empty in the comparison tables.
48. Explain why the authors conclude that “This approach enables us to perform a more accurate, unbiased, and extensive comparison.”
49. The paper states that meta-process models and meta-data models are being constructed from the OOADMS. Why are *both* type of models needed in the comparison?
50. Nowadays, we would use Process-Deliverable Diagrams (PDD) for the comparison of methods. Give two advantages of using PDD instead of the Task Structure diagrams and the Extended Entity Relationship diagrams. Explain the advantages.

The following questions are based on the paper:

Weerd, I. van de, Weerd, S. de, Brinkkemper, S. (2007). Method comparison: A case study in game production methods. *Proceedings of the IFIP WG 8.1 Working Conference on Situational Method Engineering: Fundamentals and Experiences*, IFIP Vol. 244, 313-327.

51. Describe three motives for comparing methods.
52. Explain in your own words what the comparison operator ‘=’ means, and explain an example taken from Table 4 in your own words.
53. Explain in your own words what the comparison operator ‘><’ means, and explain an example taken from Table 4 in your own words.
54. Explain the difference between a super method and a reference method.