

Exam Design Science Methodology

3rd February 2012

Keep your answers precise: short and informative.

1. Which of these problems is an improvement problem, and which a knowledge question? Explain your answer using the heuristics for distinguishing improvement problems from knowledge questions. If a problem is ambiguous, explain the ambiguity.
 - a. What are the goals of these users?
 - b. What would be a good procurement process for Office supplies?
 - c. What is the complexity of this algorithm?
 - d. Find an algorithm to solve this problem
 - e. How do users interact with this system?
 - f. How to interact with this system?
2.
 - a. What is the difference between a research goal and an external goal?
 - b. What is the use of stating an external goal?
3.
 - a. Explain the difference between treatment and artifact by means of an example.
 - b. Explain the difference between testing and treatment.
4. Does the design cycle represent the structure of the design process? Why (not)?
5.
 - a. There are three levels of stakeholder awareness of a problem. Define them and give examples
 - b. Define the difference between stakeholder desire and goal, and
 - c. Relate this distinction to the levels of problem awareness.
6. What is problem relativity? Explain by means of an example.
7. If an indicator of a property changes, does this *cause* the property to change? Explain your answer, using an example.
8. Design validation and implementation evaluation ask partly the same questions.
 - a. Which questions are the same, which are different?
 - b. Why are these differences there?
9. Scaling up to practice involves an addition of more details and a generalization to a larger scope. Explain this by means of an example.

- 10.
- Describe the difference between facts and theories; illustrate with examples.
 - A theory has two components; describe them and give examples.
- 11.
- What is the difference between a unit of study and a unit of data collection?
 - Why do we need units of data collection? Why not always study the units of study?

Points:

	a	b	c	d	e	f	
1	2	2	2	2	2	2	12
2	4	4					8
3	4	4					8
4	8						8
5	4	4	4				12
6	4						4
7	6						6
8	4	6					10
9	6						6
10	4	4					8
11	4	4					8
							90

$$\text{Exam Grade} = (10 + \text{Points}) / 10$$