

## Software Testing, Autumn 2005

### Exercises III

21.11. – 25.11.2005

1. What are the principles and main challenges of testing component-based software?

You may use the following article as source (available both in paper format and in electronic format in the online materials of the Kumpula Science Library):

E.J. Weyuker: Testing Component-Based Software: A Cautionary Tale.  
*IEEE Software* 15, 5 (September / October), 1998, 54-59.

2. Give an example of a program that can be tested by complete statement coverage but not by complete branch coverage.
3. Let us study the following program:

```
x=0; read(y);  
while (y > 100) { x=x+y; read(y); }  
if (y < 200) print(x) else print(y);
```

- a) Construct a control-flow graph for the program.
  - b) Design test cases for reaching complete branch coverage over the program. Use as few test cases as possible.
4. Give an example of a program defect that can be found in white-box testing when following the multicondition coverage principle but not (necessarily) when following the branch coverage principle.